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THE MEASUREMENT OF SOCIAL RELATIONS OF MENTALLY RETARDED AND YOUNG ELEMENTARY SCHOOL CHILDREN USING A MODIFICATION OF SYRACUSE SCALES OF SOCIAL RELATIONS.

BY- DEJUNG, JOHN E. HARING, NORRIS G.
KANSAS UNIV., LAWRENCE, SCH. OF EDUCATION

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A SOCIOMETRIC TEST WAS USED TO COMPARE THE SOCIAL ACCEPTANCE OF MENTAL RETARDATES IN THE GRADE SCHOOL SPECIAL CLASSES AND THE REGULAR CLASSES. MODIFIED SYRACUSE SCALES OF SOCIAL RELATIONS (SSSR) WERE ADMINISTERED IN TEST-RETEST DESIGN TO 400 CHILDREN. AN EXAMINATION WAS MADE OF THE FOUR SPECIAL NEEDS SCALES. CONCLUSIONS DRAWN FROM THE DATA COLLECTED AND ANALYZED WERE (1) THE UNMODIFIED SSSR SHOULD NOT BE USED IN ELEMENTARY GRADES, (2) THE MODIFIED VERSION EXTENDS ITS USEFULNESS TO THE THIRD-GRADE LEVEL AND TO MOST EDUCABLE RETARDED PUPILS IN SPECIAL CLASSES, AND (3) WITHIN REGULAR CLASSES LOWER INTELLIGENCE PUPILS RECEIVE FEWER PEER NOMINATIONS THAN DO THEIR BRIGHTER CLASSMATES. (RS)

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JOHN E. DE JUNG AND NORRIS G. HARING
PRINCIPAL INVESTIGATORS

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John E. deJung and Norris G. Haring

Principal Investigators

Department of Special Education, School of Education

University of Kansas

Lawrence, Kansas

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TABLE OF CONTENTS

Preface iii

List of Tables vii

List of Figures ix

Section

I. Introduction 1
  A. Discussion of Problem 1
  B. Project Overview 4

II. Effects of Rater Frames of Reference in Peer Ratings 9
  A. Testing Procedures and Data Analyses 10
  B. Comparison of Ratings Obtained with and Without Explicit Reference Frame Instructions 15
  C. Comparison of Ratings Obtained Using Two Different Explicit Reference Frame Instructions 21

III. Recall Populations: Size, Shape, and Selection for Reference Frame . . 30
  A. Discussion of Problem 30
  B. Testing Procedures 33
  C. Size of Recall Population 40
  D. Shape of Distribution of Recall Population 43
  E. Selection for Reference Frame 46

IV. Modification of Directions and Format for Syracuse Scales of Social Relations 51
  A. Summary Description of Interview Procedures and Data 52
  B. Eight-Category vs. Five-Category Scoring 56
  C. Second Grade Testing 59
  D. Modification of the Syracuse Scales of Social Relations 63
  E. Individual Administrations of the Syracuse Scales 74

V. Reliability, Individual vs. Group Administration, and Inter Scale Correlational Analyses 77
  A. Testing Program for the Modified Syracuse Scales of Social Relations . 77
  B. Test-Retest Reliability 79
  C. Individual vs. Group Administrations 92
  D. Inter Scale Correlational Analyses 94

VI. Intelliegence Test Scores, Academic Achievement, and Peer Ratings Made and Received on the Modified Syracuse Scales 102

VII. Summary of Research Relating to the Administration of the Syracuse Scales to Young Regarded School Children and Their Younger Classmates . . 108

A. Summary 108

B. Addendum 112

References 115

Appendices

A. Syracuse Scales of Social Relation: Parsons Modification for Group Administration (Grades 3 - 6) 119

B. Scale Format for Parsons Modification of Syracuse Scales of Social Relations 127

C. Roster of Pupils Providing Data for Parsons Modification of Syracuse Scales of Social Relations: Sex, CA, IQ, Achievement Test Scores 129

D. Mean Ratings Made and Received on Two Administrations of the Modified Syracuse Scales of Social Relations: Social Need Scales, Succorance, Achievement Recognition, and Playmirth 145

E. Scale Positions Used by Pupils in Evaluating Classmates on Initial and Retest Administrations of the Parsons Modification of the Syracuse Scales of Social Relations: Social Need Scales, Succorance, Achievement Recognition, and Playmirth 159

LIST OF TABLES

Table

2.1 Comparison of Class Rating Indices Obtained in Two Sixth Grades With and Without Explicit Reference Frame Instruction 16

2.2 Comparison of Median Individual Rating Indices Obtained in Two Sixth Grades With and Without Explicit Reference Frame Instructions 18

2.3 Comparison of Class Rating Indices Obtained in a Sixth and Fifth Grade Class Using Two Different Explicit Reference Frame Instructions 22

2.4 Comparison of Median Individual Rating Indices Obtained in a Sixth and Fifth Grade Class Using Two Different Explicit Reference Frame Instructions . 25

3.1 Distributions of Sex, CA, and IQ for Three Classes of Public School Classmates and Two Classes of Retarded Children Providing Recall Data 34

3.2 Pupil Recall Populations of All Persons Known to Them: Number of Names Recalled, Percentage of Different Ratings Made, and Use of Recalled Persons in Syracuse Scales Reference Frame 38-39

3.3 Class Averages for Recall Data Presented in Table 3.2 41

4.1 Roster of Higher Level Institutionalized Retardates and Special Class Day School Pupils Interviewed with Respect to Peer Rating Behaviors and Conceptualizations Related to the Syracuse Scales of Social Relations . . . 54

4.2 Correlations Between Mean Rating Indices Based on Regular (Eight-Category) and Abridged (Five-Category) Scoring of the Syracuse Scales of Social Relations, Elementary Form, Need Scales Succorance and Achievement Recognition, in Two Sixth Grade Classes 58

4.3 Correlations Between Individual Rating Indices Based on Regular (Eight-Category) and Abridged (Five-Category) Scoring of the Syracuse Scales of Social Relations, Elementary Form, Need Scales Succorance and Achievement Recognition, for the First Five Pupils Tested in Two Sixth Grade Classes 58

4.4 Cumulated Percentages for Scale Positions Used by Pupils in Evaluating Classmates on Three Social Needs Scales, Succorance, Achievement Recognition, and Playmirth, of the Regular and Modified Syracuse Scales of Social Relations Using an "All Persons Known" and an "All Children Known" Reference Population, Respectively 70-71

5.1 Distributions of Sex, CA, and IQ for 16 Classes of Public School Pupils Tested on the Modified Syracuse Scales of Social Relations and Providing Test-Retest Individual vs. Group Administration, and Inter Scale Correlational Data 79

5.2 Average Test-Retest Reliability Coefficients, Means, and Standard Errors of Measurement (SE) for Individual Ratings Made of Classmates on Two Administrations of the Modified Syracuse Scales of Social Relations, Social Scales, Succorance, Achievement Recognition, and Playmirth. . . . 82

5.3 Average Test-Retest Reliability Coefficients, Means, Sigmas, and Standard Error of Measurement (SE) for Individual Ratings Received from Classmates on Two Administrations of the Modified Syracuse Scales of Social Relations, Social Scales, Succorance, Achievement Recognition, and Playmirth 85

5.4 Cumulative Percentage Changes in Individuals' Ratings Made Upon Subsequent Administration of the Modified Syracuse Scales of Social Relations, Social Need Scales, Succorance, Achievement Recognition, and Playmirth 87

5.5 Average Test-Retest Reliability Coefficients, Means, and Sigmas and Standard Errors of Measurement (SE) for Average Ratings Made of Classmates on Two Administrations of the Modified Syracuse Scales, Social Need Scales, Succorance, Achievement Recognition, and Playmirth 89

5.6 Average Test-Retest Reliability Coefficients, Means, Sigmas, and Standard Errors of Measurement (SE) for Average Ratings Received From Classmates on Two Administrations of the Modified Syracuse Scales, Social Need Scales, Succorance, Achievement Recognition, and Playmirth 91

5.7 Average Inter Scale Correlations, Means and Sigmas for Individual Ratings Made of Classmates on the First Administration of the Modified Syracuse Scales of Social Relations, Social Need Scales, Succorance, Achievement Recognition, and Playmirth 95

5.8 Average Inter Scale Correlations, Means and Sigmas for Individual Ratings Received from Classmates on the First Administration of the Modified Syracuse Scales of Social Relations, Social Need Scales, Succorance, Achievement Recognition, and Playmirth 96

5.9 Average Inter Scale Correlations, Means, and Sigmas for Average Ratings Made of Classmates Obtained on the First Administration of the Modified Syracuse Scales of Social Relations, Social Need Scales, Succorance, Achievement Recognition, and Playmirth 97

5.10 Average Inter Scale Correlations, Means and Sigmas for Average Ratings Received from Classmates Obtained on the First Administration of the Modified Syracuse Scales of Social Relations, Social Needs Scales, Succorance, Achievement Recognition, and Playmirth 98

6.1 Average Within Class Correlations for Average Ratings Made by Classmates ($\bar{X}$m) and Received from Classmates ($\bar{X}$r) on the Modified Syracuse Scales of Social Relations, Social Need Scale Succorance, with Rater IQ and Academic Achievement Test Scores 103

6.2 Mean Ratings Made ($\bar{X}$m) and Mean Ratings Received ($\bar{X}$r) by Regular Class (Grades 3 - 6) and Special Class Pupils with IQ's 85 and Below on the Modified Syracuse Scales of Social Relations, Social Need Scales, Succorance, Achievement Recognition, and Playmirth 106

SECTION I

INTRODUCTION

A. Discussion of Problem:

This project was undertaken as a first stage of a comparative study of the social relations of mentally retarded public school children in regular and special classes. The initial project plan[1] was conceptualized in response to the question of the relative social acceptance (generally defined by within class peer nominational procedures) of retardates remaining in the regular classes with those placed in special classes. Though reports of studies relating to this question are frequently quoted, generally concluding that (1) retardates in regular classes are socially segregated, and (2) that retardates in special classes are far more likely to be accepted as friends (Johnson, 1950; Goldstein, 1962; Jordan, 1959, etc.); none of these studies permit across class comparisons. Two methodological problems are responsible for this impasse; lack of control over prior-to-placement differences between special class and regular class retardates and lack of inter class comparability of sociometric measures. The first of these is a sampling problem, the fact that placement and non-placement of retardates is frequently predicated on a decision reflecting differences among retardates to start with, that prevailing assignment practices expediently (from point of view of regular class teacher) decongest the regular classroom of behavioral problem youngsters first, and only also place the non-disturbing retardates in a special class if there is still room.[2]

This project essentially focusses on the second problem, the lack of inter class comparability of sociometric measures. Traditional sociometric nominational procedures require a pupil to name or select one or more of his or her classmates as a most (or least) desired person for some given social interaction situation. The pupil's score, generally referred to as a social acceptance score, is a function of the number of pupils naming him. Bronfenbrenner's early critique of sociometric data (Bronfenbrenner, 1945) focussing on methodologies for identifying significant data and the need for a constant frame of reference for determining significances, introduced a deviation-from-chance expectancy model. Sociometric score expressed as a probability was found to be relatively uninfluenced by ordinary variations (from 14 to 38) in the size of the rating group (Thompson, Bligh, and Witryol, 1951).

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[1] Submitted for Cooperative Research Project Grant support in June of 1960. The present study (Project #1182) submitted September 1960 embodies only the first phase of that longer study.

[2] For a recent comprehensive analysis of this problem, see Goldstein, et al., 1962.

The nominational score, however, is subject to biases (influences) other than the number of nominees (class size) which seriously limits its value for intergroup comparisons. Chief among these is the built in reference frame specific to each nominating group and from which social acceptance scores for that group's members derive meaning. A member is nominated or not nominated in terms of whom else there is to nominate, who else is in the group (deJung and Kuntz, 1962). It is axiomatic that sociometric isolates, if grouped together and nominating within that group, will on the average receive more nominations than previously. Even without the restriction to only within class nominations, proximal associations alone will seriously increase the probability of nomination (Gallagher, 1958). A further problem is that the stability of that reference frame is generally dependent on the membership of only a few key individuals. In most groups a few "stars" receive by far a preponderance of all nominations made (Gronlund, 1959). This positively skewed distribution of sociometric choices referred to as a "sociodynamic law" by Moreno (1953) has been found to be generally constant for different grade levels, at least through junior high (Gronlund, 1959). The removal of one or two of these key persons necessarily reduces, perhaps grossly so, intensity or perceived rater distance between remaining potential nominees.

Bronfenbrenner's probability model is essentially an extension of the usual sociometric model which operationally assumes that all choices or nominations are equal (or all first nominations are equal), probability here defined by size of group. This is to say that Mary's choice of Joan for "someone that you would like to invite to a party" is equated to Joan's choice of Gayle, is equated to Joe's choice of Bill, etc. The arithmetic treatment of nominations as sums or averages over different nominators and the comparison of these sums or averages across nominees logically requires this assumption of the equality. Without assumptions of equality of nominations across nominators, nominational data is ordinal, permitting ranking and nothing more. The relatively barren though more precise statement of who named whom first, second, or third, etc., almost invariably shifts in analysis to summarizations of who received the most nominations, which persons received the same number of votes, which persons are similarly neglected or rejected, etc. This shift or redefinition of nominational data is, in effect, a verbal shift from an ordinal to an interval scale.

A more satisfying approach may be made by scaling these nominations along the continuum of favorableness - unfavorableness as perceived by the nominators. The operational requirements here immediately become more demanding. The subject task becomes one of quantifying differences within the pool of potential nominees. However, the argument suggesting inequalities of within-nominator choice extends to inequalities of across-nominator choice. Given an interval scale for within nominator separations, the experimenter is still faced with the problem of developing inter rater scale equivalents; that is, operations for making different nominator scales interchangeable. Operationally, this is asking what are the touching places of Mary's and Joan's and Joe's scales. The experimenter's task is selection and development of a common pertinent dimension of choice behavior for relating the preferential statements or separations made by the different nominators.

Gardner and Thompson (1956) present an argument for a personal social need-satisfaction continuum in their study of small group morale. This continuum is hypothesized as an experience laden yard stick, stabilized in terms of the subject's history of interacting with other persons. The yard stick is specific to a given social need situation; the yard stick might be quite different for a different social need (Meyer and deJung, in press). The extremes of any yard stick are the "least" desired and the "most" desired person known to the subject with respect to that given social need situation. Building on the basic assumption that extreme positions may be considered "psychologically equivalent" across different subjects, the subject is instructed to bisect his "person-satisfaction" continuum utilizing an average or "half-way between person" and to again bisect each of the halves using "half-way between middle and extreme persons." The result is a five person frame of reference personal and meaningful to the subject (rater) and psychologically equivalent with those frames of references similarly built by other subjects (raters). Utilization of such a reference frame procedure permits intergroup comparisons of intragroup social interaction indices. The Syracuse Scales of Social Relations employing this rater frame of reference was developed by Gardner and Thompson for group administration in grades five through twelve (Gardner and Thompson, 1959). The project task undertaken by the present writers was one of further developing and implementing this methodology to permit the testing of mentally retarded school children and their younger classmates. It called for a closer empirical examination of rater behaviors required by the Syracuse Scales directions and a modification of these directions amenable for administration in lower grades and special classes.

B. Project Overview:

The essential features of the Syracuse Scales procedures for measuring social relations in small groups are: (1) The introduction of a specific social need situation, (2) the conceptualization of a total reference population of "all persons ever known" and the bisectioning of this population into a five person reference frame in terms of the social need situation, and (3) the comparison of all group members with the persons in the reference frame using a series of paired comparisons. These three steps, the conceptualization of a need situation, the development of a five-person reference frame, and the comparing of others against this reference frame, are repeated for each social need situation. In examining the appropriateness of these procedures for administrations to mentally retarded school youngsters and their younger academic peers, three somewhat separate though chronologically overlapping inquiries were pursued. These culminated in a general modification of the Syracuse Scales format and administrative procedures. The modified scales were then administered in test-retest situations to some 400 elementary and retarded public school children to provide statistical data for comparison with data reported for the 1957 standardization sample.

The first inquiry involved an examination of the mentally retarded youngster as a peer rater. What is his operating rater vocabulary, his repertoire of adjectives for classifying and socially discriminating among his peers? What of his interest, his willingness to rate others, his attentiveness to the task and, perhaps, most crucial to the rating task, what of his comprehension and understanding of the generally abstract instructions, his ability to conceptualize social need situations, to recall "all others known" to him, to identify anchor persons and to segment this recall population, to match his peers against this reference frame? In what ways might these required test behaviors be made more manageable for the retarded child?

These questions were systematically explored through a series of repeated clinical interviews involving 12 higher level institutionalized retardates, ages 7 to 14, and 21 day school special class pupils, ages 8 through 16.[3] The accumulated data from these interviews high-lighted several problems of low level rater performance, some already suspect from feedback reports of several scales users, and led to a number of suggestions for scale modifications. A summary description of these interview procedures and of indicated scale modifications are reported in the first several pages of Section IV of this report, "Modification of Directions and Format for the Syracuse Scale of Social Relations." Data relating to the comparability of a five- and eight-category scoring of Syracuse Scales ratings and a description of an early modified scales administration to a class of second graders are included in this section. An extensive tabulation of the rating categories used by elementary pupils in rating their peers on the standardized and on the modified scales is also presented.

At the same time the interviews were being conducted, two questions regarding the development and use of the rater's reference frame were empirically explored. The first question concerned the efficacy of the use of any reference scale at all. Does the instructional insistence of writing names of referent persons across the top of the rating page make any difference: Are these names actually attended to? Are peer ratings obtained with and without this series of anchor referents different a) in terms of absolute scale values, b) in terms of relative rank orderings? The second question concerned differences between explicit reference frame instructions. Do different instructions defining reference frames affect the subsequent ratings made?

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[3] In addition, throughout the course of the study, feedback from scales administrations to a number of other public school regular and retarded pupils was absorbed into considerations of scale modifications. The above mentioned 33 retardates were interviewed in nontest clinical settings.

The testing of older rather than younger elementary school pupils was decided to avoid confounding possible problems of task comprehension and/or suitability with the particular point of inquiry regarding rater usage of reference frames. The lack of differences in rating behaviors of (presumably) more socially mature sixth graders under differing conditions of reference frame instruction would logically suggest less experimental concern with reference frame specificity at, say, the third grade level.

Fifty-two regular sixth grade pupils in two classes twice rated their classmates on two social need situations, once without explicit instruction as to frame of reference and once following the regular Syracuse Scales format. In addition, two further classes, one a sixth and one a fifth grade, were twice tested using two differently defined explicit reference frames. Descriptions of these testing procedures and ensuing data analyses are reported in Section II, "Effects of Rater Frames of Reference on Peer Ratings."

The second question concerned the recall population. The Syracuse Scales format requires the rater to select five persons, a most, least, middle, halfway between middle and most, and a halfway between middle and least person for a population of "all persons ever known" to them. Gardner and Thompson suggest as a rule of thumb that the rater know at least three times as many persons as there are in the group he is rating (Gardner and Thompson, 1956, p. 55). An experimental concern in preparing administrations for younger and retarded children is the number of persons they can recall. If selection of the reference persons is restricted (by limited memory or paucity of actual contact) to, say, only those in one's family group and those physically present (classmates), the generalities derived from the assumption of psychological equivalence of reference points (across raters) are seriously challenged. The number of persons recalled under less restricted (timewise) conditions sets a probable upper estimate of the number of persons conceptually available for reference frame consideration.

Gardner and Thompson, in discussing guides for rater construction of his reference frame, suggest a normal curve model. A bell shaped stick figure representation is presented in the standardized edition of their test (Gardner and Thompson, 1959). Though this assumption of normality is not essential to establishing psychological equivalence of rater reference positions, inquiry as to the nature of a pupil's distribution of ratings based upon a relatively complete[4] recall population is clearly pertinent to the formulation of the instructions he is to receive in developing his reference frame. This inquiry is further pertinent to the rater's proper selection of his reference frame persons. With the additional information of ratings of all recalled persons, the selection of reference persons in a follow up administration of the Syracuse Scales can be evaluated.

In the spring of 1961 two classes of sixth graders and two classes of retarded children were asked to list "all the persons you have ever known." Some 13, 000 recall names were obtained. In a second class session, most of these pupils were further required to rate all their recalled persons on a five-point social need scale succorance. In a final class session the standardized form of the Syracuse Scale was administered to these same pupils. One regular third grade class was somewhat similarly tested the following spring. These procedures and the analyses of the data thus obtained are reported in Section III, "Recall Populations: Size, Shape and Selection for Reference Frame."[5]

The 1961-1962 testing program for the administration of the modified directions and format to approximately 400 public school pupils in special classes and in grades 3 through 6 is described in Section V. Data and discussion pertinent to test-retest reliability and inter scale correlation are reported at length. The initial data from the Syracuse Scales standardization report (Gardner and Thompson, 1959) and that of independent research studies using the standardized format are discussed in relationship to the present modification scale data. The equivalence of individual and group administered scales is examined in the latter part of this section.

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[4] See Section III for the operational procedures defining "total" recall population.

[5] A more extended analysis of the size and "shape" of the child's recall population is now being prepared for publication in Child Development.

The relationship of intelligence test and achievement test scores to the ratings pupils make of and receive from classmates is examined in Section VI, "Intelligence Test Scores, Academic Achievement, and Peer Ratings Made and Received on the Modified Syracuse Scales." Ratings made and received by low IQ pupils in regular and special classes are compared and comparable findings reported for sociometric nominational studies are noted.

Section VII, "Summary of Research Relating to the Modifications of the Syracuse Scales of Social Relations," presents an overview of the research reported in the preceding five sections. An addendum describing a further investigator interest completes this section.

SECTION II

EFFECTS OF RATER FRAMES OF REFERENCE ON PEER RATINGS

The initial use of a reference population in inter person ratings is generally credited to Walter Dill Scott, who parented the adoption of the man to man rating scale during World War I (Hunt, 1936). Essentially, the rating procedure required the rater to rank order his self recalled list of names of persons (officers) he had known, to form a five man reference frame using his top and bottom ranked recalled persons as extremes on his reference frame, his median ranked recalled person for the middle or third reference position, and two midway between median and extreme ranked persons for corresponding midway positions of two and four. Ratees would then be compared or matched to the reference persons and assigned numeric values corresponding to that of his referent's position. Due largely to the problems of rater task difficulty in building his reference frame and of doubtful comparability across different raters' scales, the man to man scale fell into gradual disuse to be replaced by graphic type rating scales.

In their experimental development of measures of group morale using fraternity samples, Gardner and Thompson revised Scott's use of a personal reference frame (Gardner and Thompson, 1956) and introduced a reference frame of "all males you have ever known." The current Syracuse Scales of Social Relations, a product of this research, utilizes a rater reference frame abstracted from a total population of "all persons known" to the rater.[1] Essentially, any rating procedure operationally becomes one of judging each of several stimuli (others) as belonging to one of a series of offered categories. Within the confines of an a priori decision as to the desired meaningfulness and properties of the obtained ratings, (in the case of the Syracuse Scales, a measure of potential social need satisfaction permitting meaningful comparisons across raters and across groups) the problem of choosing a "best" series category becomes a matter of empirical demonstration.

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[1] For a more complete description of these scales see Thompson, 1960.

Gardner and Thompson report a series of analyses of ratings obtained within a single college fraternity sample using two reference frames, "all men ever known" and "all fraternity men ever known." Essentially equivalent test-retest coefficients were obtained for the wider and the more restricted reference frame (Gardner and Thompson, 1956, Tables 1, 2, 4, 5, 6, 8 - 13). Their obtained mean stability coefficients, based on a subsample of 10 fraternity members making repeated ratings of 28 others on social need scale affiliation, were nearly identical with the mean correlations obtained between ratings they made using the wider and more restricted reference frame, r 's of .76 and .75, respectively. The authors concluded in support of their working hypothesis that individuals rank their companions "in a highly similar way when responding to the same social need in two reference situations" (Gardner and Thompson, 1956, p. 154).

In considering the applicability of the Syracuse Scales format for administration to a retarded public school population, the possibly too difficult concepts of reference frame and bisection became an immediate focus of inquiry. Two questions arose, one concerning the employ of any reference frame at all and the second concerning a choice of alternative reference frames. The first question inquires as to the efficacy of explicit reference frame instructions and the follow through task of identifying reference persons. Are ratings obtained with reference frame instruction different from those obtained without explicit instruction? A negative answer here would suggest an unimportance of the reference frame format; indeed, given the reasonable expectation of initial rater differences in their privately developed referents, it would grieveously question the entire argument of comparability of ratings across rater groups and even across raters with a given group.

A. Testing Procedures and Data Analyses:

To avoid a confounding of the probable limitations of the younger or retarded child in coping with the standardized format (presently standardized down to grade five) with the more immediate inquiry of effect of reference frame instruction on peer ratings, a regular sixth grade class (Class 6A)[2] was selected for testing. Two rating sessions were scheduled early in June of 1961. On the first test day all pupils received a mimeographed booklet similar to that used in the regular administration of the Syracuse Scales of Social Relations excepting that all references to a population of others were deleted. Essentially, the pupils were presented with a rating sheet containing a list of the names of all of their classmates. A horizontal line graduated into eight numerically identified segments from 1 (least), 2 (a little better), through to 8 (most), extended from each classmate's name across the page to the right. Two social need situations, succorance and achievement-recognition, were defined by their regular descriptions in the standardized instructions. The pupils were instructed to rate each classmate by circling a number (1 through 8) on the line to the right of that classmate's name. They were cautioned not to talk with anyone about their ratings and were told that their ratings would be confidential to the administrator. The following day the standardized form (Elementary) of the Syracuse Scales of Social Relations requiring development of a five-person reference frame based on "all persons known" to the rater was administered for the same two social need situations. Each pupil thereby twice rated and was twice rated by all of his classmates on two social need situations. No further data was collected from these pupils.

During the course of analyses of the first sixth grade data, the results of a contemporaneous examination of the recall population available to the sixth graders (reported in Section III) led to suggestions of an alternative, somewhat more restrictive reference population, that of "all children known" to the rater. In replicating the no reference frame vs. reference frame instruction, this alternative reference frame of "all children known" was substituted for the more general "all persons known" frame. A new class of sixth graders (Class 6B) was tested, again on consecutive days, the no reference frame instructions followed by the explicit reference frame instructions requiring development of a five person reference frame. The same two social need scales, need succorance and need achievement recognition, were administered.

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[2] Throughout this report classes will be identified by number indicating grade followed by a letter to distinguish this class from other classes at the same grade level.

The second question, that of possible effects of using different reference populations, was examined in terms of data from a sixth and a fifth grade class. Two alternative reference populations were contrasted here; that of the standardized scales format "all persons known" and that of the modified format, "all children known."[3] The sixth and fifth grade classes (Classes 6C and 5A) were initially tested as part of a general trial administration of a modified scales format (reported in Section V) using the "all children known" reference frame. The two classes were retested a week later using the standardized scales format with its wider reference population of "all persons known." Both administrations required the rater to construct a five person reference frame and require a "matching" of classmates with reference frame persons. The directions for peer rating on the modified form stop here with a resulting five-category rating scale scored 0, 10, 20, 30, and 40. The standardized format calls for a final additional comparison of "better than" or "less good than" the selected reference person, yielding in effect an eight-category rating scale essentially scored 10, 20, 30, 40, 50, 60, 70, and 80. For the purposes of more immediate comparison, the final, "better than"-"less good than," comparison on the standard administration was not scored and the prior matching scored instead similar to that for the modified scales directions. Argument supporting curtailment of the standardized eight-category is presented in Section IV. The seven day rather than the one day intervening interval was considered advisable here to reduce recall and therefore reusage of the same (peer) anchor persons in the rater's second testing reference frame. This reference frame reusage was checked by making a subsequent count for Class 6C and for a companion sixth grade class, twice tested a week apart using the "all children known" reference frame on both occasions. The count revealed that only about

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[3] In developing a five person reference frame any of a multitude of possible populations may be serviceable. Gardner and Thompson support their use of an eight-category rating continuum with a minimum requirement that the rater's potential reference population extend from a theoretic lower limit or threshold to eight JND's above this point. In speaking of the desirability of a fairly large reference population they suggest a rule of thumb minimum of three times the number of persons in the present rating group (Gardner and Thompson, 1956, p. 55). The reference population "all children known" meets this minimum requirement (see Section III). Further arguments supporting this choice of the reference population are presented in Section IV.

22 per cent of the 270[4] selected reference persons in the companion sixth grade class were twice identically used as reference persons in the two testing situations. Sixty-one per cent of the 270 reference names used in the second administration had not even been used in the week earlier administration of the same social need scale. In Class 6C only 11 per cent of the 310 selected reference persons were twice identically reused in the second administration. Seventy-four per cent of the 310 reference names used in the second "all persons known" reference frame had not been previously used for the same social need scale. Of these 208 new names, 93 were identified as adults.[5]

The analyses of Syracuse Scales data introduces an important distinction between ratings made, either an individual rating made (X_m) or a mean of ratings made ($\overline{X}_m$), and ratings received, either an individual rating received (X_r) or a mean of ratings received ($\overline{X}_r$). The former (X_m) refers to a rater's evaluation of a classmate for satisfying a given social need. The mean of these ratings he makes ($\overline{X}_m$) describes his average evaluations of others. The standard deviation of his ratings made (σ_m) reflects the extent to which he, as a rater, differentiates among his classmates.

The rating received (X_r), on the other hand, refers to the pupil as a ratee, how he in turn is evaluated by a classmate. The mean of these ratings received ($\overline{X}_r$) is a consensual description of his perceived need satisfaction potential in that class. The standard deviation of his ratings received (σ_r) reflects the extent to which he, as a ratee, is differentially regarded by his classmates.[6] In considering a class as a unit, the class average of mean ratings made ($\overline{\overline{X}}_m$)

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[4] Number of pupils tested times number of need situations times five reference persons.

[5] Predominantly for the upper locations of the scale (see Section III).

[6] The mean rating received may be considered a counterpart of the frequently reported social acceptance score based on nominational data. The mean rating made has no counterpart in usual sociometric analysis unless perhaps a count were made of the number of others chosen by a nominator in an unlimited nominational situation.

is arithmetically identical (except for rounding errors) to the class average of mean rating received ($\bar{\bar{X}}_r$). The sigmas, however, for mean ratings made ($\sigma_{\overline{m}}$) and for mean ratings received ($\sigma_{\overline{r}}$) are free to differ, the first reflecting the variability among pupils in their evaluations of the need satisfaction potential of the class as a group and the second, reflecting the variability among pupils as to how they are consensually regarded by the class.

The means, standard deviations (σ's), and inter reference frame and inter scale product moment correlation coefficients for both ratings made by pupils and received from pupils were computed separately for each social need scale for each of the four classes tested. These are reported in Table 2.1, 2.2, 2.3, and 2.4. Class 6A and 6B data (Tables 2.1 and 2.3) permit comparisons of ratings obtained with and without explicit reference frame instruction. Class 6C and 5A data (Tables 2.3 and 2.4) permit comparisons of ratings obtained using alternative explicit reference frame instructions. The rating instructions for Class 6B differed from those of Class 6A only in terms of the modified, less general reference frame used in the retest administration in Class 6B. Both classes used the standardized rating booklet for their retest administration. Two different school psychologists served as test administrators. Class 6A was located in a western New York community suburban to Buffalo, New York; Class 6B in a less populous agricultural community in southeastern Kansas. With respect to the central question, does the introduction of an explicit frame of reference affect within class social ratings, Class 6B data may essentially be regarded as replicating that of Class 6A.

Class 6C and 5A data were collected concurrently; that is, both classes were tested (in their respective home rooms) at the same time. This testing was part of an extensive test-retest schedule administered in a cooperating elementary school to all third, fourth, fifth, and sixth grade pupils. A team of three research psychologists administered all tests. Class assignments were varied so that a different tester administered the second testing in both classes. (See Section V for a fuller description of the testing program.)

B. Comparison of Ratings Obtained With and Without Explicit Reference Frame Instruction:

Differences between mean social need scale rating indices obtained with and without explicit instructions for the development of a reference frame are quite strongly and similarly indicated in the Class 6A and 6B data presented in Table 2.1. A substantial decrease in the scale values of mean ratings made is evidenced by the shift in class mean ratings. In Class 6A the decrease is 6.1 scale units on the social need scale succorance, a difference of nearly three standard errors[7] and 10.0 scale units on the social need scale achievement-recognition, a difference of more than four standard errors. The Class 6B shifts are even larger; 18.1 scale units on the social need scale succorance, a difference of more than seven standard errors and 16.2 scale units on the social need scale achievement-recognition, a difference of more than six standard errors. The fact that both initially and subsequently Class 6B pupils rated their classmates considerably higher than did Class 6A pupils is irrelevant here[8] except to permit further generalization of this rating depressor effect of the reference frame instruction.[9]

A further effect of the reference frame instruction appears to be a decrease in the variability of the mean ratings made, that is, pupils tend to differ less in their average rating of all their classmates using the explicit reference frame. This is true in both classes and for

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[7] The standard error for the difference of correlated means defined as

$$SE = \sqrt{(\sigma_1{}^2 + \sigma_2{}^2 - 2\,\mathrm{Cov}_{12})/N-1}.$$

Since the σs and rs differ for ratings made and ratings received, the computational value of the SE is different in referring to differences between average ratings made and to those between average ratings received. The integer values reported in the text are the lesser of two possible ratios.

[8] Differences between classes as large as these are within expectations of variability among sixth grade classes (Gardner and Thompson, 1959, Table 3).

[9] The depressor effects described here, of course, pertain only to the particular reference populations used. Different reference populations than those used here are possible which could be expected to have different or no effects.

Table 2.1

Comparison of Class Rating Indices Obtained in Two Sixth Grades With and Without Explicit Reference Frame Instruction

Class	Reference Frame Instruction	Class mean rating	σ of mean ratings		Inter reference correlation		Inter scale correlations with need succorance	
			Made	Rec'd	Made	Rec'd	Made	Rec'd
			Need Succorance Scale					
6A (N=26)	None	34.5	10.0	8.9	.25	.95	---	---
	"All Persons"	28.4	7.5	8.1			---	---
6B (N=26)	None	57.2	9.4	11.4	.04	.94	---	---
	"All Children"	39.1	7.4	10.8			---	---
			Need Achievement Recognition Scale					
6A (N=26)	None	42.9	11.4	9.3	.41	.91	.82	.94
	"All Persons"	32.9	7.7	9.4			.83	.91
6B (N=26)	None	57.2	9.7	9.6	-.01	.94	.64	.92
	"All Children"	41.0	8.6	11.0			.71	.97

both social need scales. With respect to the variability in mean ratings received this reduction appears more specific to the social need scale. The variability of mean ratings received reflects the degree to which pupils are differentiated in terms of the classes' consensual ratings of them. The decrease in $\sigma_{\overline{r}}$ for the need scale succorance and the increase in $\sigma_{\overline{r}}$ for the need scale achievement-recognition, each consistent across classes, suggests that the introduction of the explicit reference frame results in less variation in class (consensual) ratings of classmates with respect to need succorance but more variation with respect to need achievement-recognition. The changes in $\sigma_{\overline{r}}$, however, are not nearly as large as those for $\sigma_{\overline{m}}$ and warrant only tentative interpretation at this point (see discussion of Table 2.2 data below).

Examination of the inter reference frame correlation coefficients adds to interpretation here. These product moment coefficients were computed for both average ratings made and for average ratings received in the no reference frame and explicit reference frame administrations of the Syracuse Scales. The four coefficients involving average ratings made were generally quite low, r's of .25, .04, .41, and -.01, respectively, indicating inter pupil differences in the extent to which they change their average evaluation of their classmates in the two test sessions. That is, the shifting effect of the introduced explicit frame of reference upon the average class rating made by the sixth grade pupils is quite different for different pupils, some shift their mean rating of all others considerably more (or less) than do their other classmates. The considerably higher inter social need scale correlations (right section of Table 2.1) computed for mean ratings obtained in the single test session indicates a reasonable stability of the mean rating made under conditions of identical reference frame instruction. The rank ordering of the average rating a pupil makes of all his classmates relative to similar average ratings made by other pupils appears more stable across different social need scales than it is within a given social need scale for instructions requiring and not requiring use of a reference frame.

The correlations between average ratings received in the no reference frame and average ratings received in the explicit reference frame administrations of the Syracuse Scales are all very high, r's or .95, .94, .91, and .94. These coefficients reflect a considerable stability in relative ordering of the pupils based on their classes' consensual or average rating of them. That is, though, as indicated by the decreased class rating means, pupils are generally rated lower using the explicit frame of reference, this decrease when examined in terms of average rating received is general and does not disturb the relative positions of the class members. The similarly high inter social need scale correlations indicate that these relative positions tend also to remain invariant across needs scales under either administration.[10]

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[10] High inter need correlations may also be viewed in terms of "halo" effect. See the latter part of Section V for further data and discussion relating to this pehnomena.

Examination of changes in rating indices and correlations computed for individual rating responses affords a further description of the effects of introducing the reference frame instruction. Means, sigmas, and inter reference correlations were computed separately for each of the five first pupils listed on the rosters of the two sixth grade classes having complete test and retest data. The median values for each of these indices are reported in Table 2.2. Unlike the class means reported in Table 2.1, the mean of ratings made by an individual are not necessarily equal to those he receives.[11] Both the means of ratings made and those received are therefore reported in Table 2.2.

Table 2.2

Comparison of Median Individual Rating Indices Obtained in Two Sixth Grades With and Without Explicit Reference Frame Instruction

Class	Reference frame instruction	Median of mean ratings		Median σ of ratings		Median inter reference correl.	
		Made	Rec'd	Made	Rec'd	Made	Rec'd
	Need Succorance Scale						
6A (N=26)	None	38.0	31.6	22.0	22.6	.84	.54
	"All Persons"	23.6	25.6	16.9	15.7		
6B (N=25)	None	56.2	60.4	15.6	17.0	.72	.14
	"All Children"	38.8	38.8	19.6	18.5		
	Need Achievement Recognition Scale						
6A (N=26)	None	51.2	37.2	20.0	19.8	.74	.40
	"All Persons"	29.2	28.4	15.9	15.1		
6B (N=25)	None	58.4	58.3	18.7	20.1	.73	.20
	"All Persons"	45.4	37.8	15.9	19.6		

Note: All entries are median values based on means, sigmas, and inter reference correlation coefficients computed for each of the first five pupils in the two classes having complete test and retest data.

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[11] Gardner and Thompson report these two indices as generally uncorrelated (1956, Table 32).

The shift in median individual rating means for both social need scales for both Classes 6A and 6B reflect essentially the same pronounced pattern of decreased ratings using an explicitly defined reference population as observed in Table 2.1. The generality of this decrease was further examined in terms of a count of the number of pupils making higher or lower average ratings on the two social need scales in their second test administration. Seventeen of the 26 pupils in Class 6A were found to have made lower average ratings on the explicit reference frame administration on the social need scale succorance, 22 of the 26 pupils on the social need scale achievement-recognition (three were unchanged). In Class 6B the shifting was found to be even more prevalent; 23 of 25 Class 6B pupils made lower ratings on the explicit reference frame administration on the social need scale succorance (one was unchanged); 22 of 25 pupils on the social need scale achievement-recognition (one was unchanged).

The data regarding changes in individual pupil variability in ratings made of classmates and in those they received from classmates is less clearly indicated. Generally, pupils both made and received more variable ratings in the no reference frame instruction administration. An exception though, is the Class 6B data for social need scale succorance where a slight increase in both made and received rating variability is noted. Examination of the 20 pairs of sigmas computed for the five pupils in Class 6A revealed that in 18 of the 20 comparisons the variability was greater in the no reference frame administration. A similar comparison in Class 6B revealed only 6 of the 20 comparisons favoring the no reference frame administration.

The correlational data based on individual ratings made and received in the two Syracuse Scales administrations is particularly interesting when compared with that for mean ratings made and received reported in Table 2.1. A clear reversal is evident here. The relatively high median correlations of .84, .72, .74, and .73 between individual ratings made of classmates using the no reference frame and explicit reference frame instruction and the moderate to low median correlations of .54, .14, .40, and .20 between individual ratings received from classmates using the different reference frame instructions markedly contrast with the near zero correlation coefficients for mean ratings made and the quite high (in the .90's) correlation coefficients for mean ratings received. With only minor exception, pupils rated their classmates lower in the explicit reference frame administration. The average per rater amount of this scale displacement (decrease) varied considerably among raters as is evident in the low mean ratings made correlations. Though the extent of these general shifts in rating others varied among raters, the rater, viewed individually, maintained a relatively stable ordering of the ratings he assigned his classmates. The high mean ratings received correlations indicate that his class standing (with respect to ratings made of him) was stable across the no reference-explicit reference frame administrations. However, on some raters' scales the ratings made of him changed considerably; on others much less so. This variability in scale displacement across raters is expressed in the moderate to low individual ratings received correlations.

Viewing Class 6A and 6B data together, several changes in rater use of his scale commensurate with a change from a no reference frame instruction to an explicit reference frame instruction may be noted: a) Most pupils rated their classmates substantially lower when explicitly directed to use the given reference frame; b) The average of the classes' rating of a classmate relative to other classmates and the individual rater's ordering of ratings of his classmates appeared relatively invariant under changing reference frame instruction; c) The average of a pupil's ratings of his classmates, relative to that of other pupils, and the ordering of the ratings he receives from his classmates appeared to vary considerably under changing reference frame instruction. This last effect describes a variable shifting in scale positions as used by different raters. The introduction of the reference frames instruction resulted in different scale displacements by different raters. This instruction was designed to facilitate rater development of psychologically equidistant reference positions. To the extent that these instructions support a more meaningful uniform set of ratings, the initial ratings made using non-explicit, private criteria under a no reference frame instruction administration must be considered ambiguous and noncomparable across raters. That is to say, varied changes or adjustments for different raters in establishing an approximate equidistant scale imply initial inequalities in the original scales used. These inequalities disallow across rater comparability. The Class 6A data and its replication in Class 6B, both based on two rating administrations, one with and one without explicit reference frame direction, are interpreted as support for the requirement of specific reference frame instruction.

C. Comparison of Ratings Obtained Using Two Different Explicit Reference Frame Instructions:

Class 6C and 5A data reported in Tables 2.3 and 2.4 permit comparisons of rating obtained using alternative explicit reference frame directions. The data for the first test administration, that involving the "all children known" reference frame, was part of the elementary school testing program designed as a test run of a modification of the Syracuse Scales directions and format (see Section V). The Elementary Form of the standardized Syracuse Scales, employing a reference population of "all persons known," was administered the following week. Though the modification used differed from the standardized scales in several administrative respects, aside from the reduced generality of reference population, these further changes, other than instructional language simplification necessary for administration in younger age groups, were primarily for encouraging more active attention to the reference frame task itself and, as such may be considered part of the redefinition of the reference frame.[12] The essential question asked of the test-retest data is to what extent are social peer ratings obtained using the redefined less general reference frame of "all children known" different from ratings obtained using the standardized "all persons known" reference frame.

An inspection of the pairs of class means presented in Table 2.3 for the three social need scales clearly reveals that lower ratings were made on the second test administration in both the sixth and fifth grade classes using the "all persons known" reference frame instruction. These decreases in class means are all from a third to more than half a standard deviation in scale

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[12] A copy of the modified scale instructions and format are provided in Appendices A and B.

Table 2.3

Comparison of Class Rating Indices Obtained in a Sixth and Fifth Grade Class Using Two Different Explicit Reference Frame Instructions

Class	Reference frame instruction	Class mean rating	σ of mean ratings		Inter reference correlation		Inter scale correlation			
							with n.Suc.		with n. AR	
			Made	Rec'd	Made	Rec'd	Made	Rec'd	Made	Rec'd
				Need Succorance Scale						
6C (N=32)	"All Children"	15.5	6.2	6.4	.75	.94				
	"All Persons"	13.1	5.3	4.5						
5A (N=27)	"All Children"	22.6	5.0	6.0	.39	.94				
	"All Persons"	19.8	5.2	6.0						
				Need Achievement Recognition Scale						
6C (N=32)	"All Children"	17.9	5.8	7.6	.62	.97	.72	.93		
	"All Persons"	14.8	5.0	5.1			.83	.90		
5A (N=27)	"All Children"	21.6	4.2	5.7	.32	.90	.76	.90		
	"All Persons"	18.6	4.9	5.2			.80	.91		
				Need Playmirth Scale						
6C (N=32)	"All Children"	17.3	5.5	6.7	.78	.74	.83	.92	.82	.92
	"All Persons"	15.6	5.3	6.0			.77	.76	.86	.75
5A (N=27)	"All Children"	21.7	6.6	5.4	.50	.89	.84	.84	.71	.87
	"All Persons"	19.0	6.0	5.9			.87	.94	.85	.91

units and in all instances constitute differences of more than two standard errors.[13] Since the ratings made in Classes 6A and 6B (Tables 2.1 and 2.2) were based on an eight point scale graduated every 10 points from a low of 10 to a high of 80 and the ratings made in Classes 6C and 5A (Tables 2.2 and 2.3) on a five point scale graduated every 10 points from a low of zero

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[13] The standard error of the difference of two correlated means defined as

$$SE = \sqrt{(\sigma_1^2 + \sigma_2^2 - 2\ Cov_{12})/N - 1}$$

The computational value of the SE is different in referring to differences between class mean rating as differences between means of average ratings made or between means of average ratings received (see footnote 7 in this section). The least of these two values exceeded 2.00 for all comparisons.

to a high of 40, the mean and standard deviations reported in these two sets of tables are not directly comparable. However, in terms of relative grossness of change in relation to the size of the standard deviation of its respective distribution of mean ratings it is apparent that the shift from no reference frame instruction to either the "all persons known" or "all children known" reference frame instruction resulted in a considerably larger depressant effect on the peer ratings than did the shift from the "all children known" to the "all persons known" reference frame instruction. As in the case of the Class 6A and 6B comparisons, the fact that both initially and upon retest pupils in one class (the fifth grade class) rated their classmates considerably higher on all three social need scales than did pupils in the second class is irrelevant here. The focal point of this inquiry is not "do classes differ in their peer ratings?" but "do different reference frame instructions evoke differences in these ratings within classes?" With respect to elevation or general level of ratings made the answer is an affirmative, yes. The fact that the two classes differ and do so consistently over three social rating scales with respect to one another lends generality to this finding.

With respect to scatter or variability of either the mean ratings made by pupils of others or of the mean ratings received from pupils, slightly lower sigmas were obtained in the second test administration for the sixth grade class. This tendency toward reduced variability between pupils as raters in their average rating made of all others and between pupils as ratees in their average rating received from all others using the "all persons known" reference frame did not maintain for the fifth grade class. No pattern of either reduced or increased sigmas of mean ratings made or received is evident for these younger pupils.

Moderately high inter reference frame correlations for mean ratings made of .75, .62, and .78 for the three social need scales by the sixth grade class are reported in the fourth column of Table 2.3. The corresponding sixth grade correlations for the no reference frame-explicit reference frame administrations reported in Table 2.1, were .25, .04, .41, and -.01. That the Class 6C pupils tended to order their classmates as a group similarly when using either explicit reference frame instruction is a clear difference from the variable shifting of average ratings made upon retesting by the Class 6A and 6B pupils first tested with the no reference frame instruction. Apparently, the lower ratings made in Class 6C on the second administration with the less restricted reference frame instruction tended to be somewhat of an across-the-board shift for all raters. That is, the sixth graders, who, relative to their classmates, tended to rate their peers higher using the "all children known" reference frame instruction, maintained their more lenient rater position relative to that of their classmates when retested using the "all persons known " instruction. The failure to obtain similarly high inter reference frame correlations for the fifth grade classes (correlations of only .39, .32, and .50) indicates that this invariance of relative rater leniency (or of harshness) was not nearly so true of the younger class. The Class 5A retest correlations, considerably lower than those reported for retesting at this same grade level with repeated administration of either of the two reference frame instructions,[14] suggest an "interference" effect similar to that argued for the 6A and 6B classes; that is, differences between raters in the extent to which they shift the average ratings made of others under changed reference frame instruction.

As was the case for Classes 6A and 6B, the inter reference frame correlations for the average ratings received from all others reported in Table 2.3 are also quite high; r's generally in the .90's. Similarly, the inter need correlations, (extreme right of Table 2.3) are in accord with those for the earlier table. The relative rank ordering of pupils based on their classes' consensual or average rating of them is relatively invariant across the two reference frame instructions and across the three social need scales.

Means, sigmas and inter reference correlations were computed for each of the first five pupils on the Class 6C and 5A rosters having complete test and retest data. The median values for these indices are reported in Table 2.4. These data permit examination of changes in individual ratings subsequent to changes in the explicit reference frame instruction.

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[14] Table 5.5 reports retest mean ratings made correlations of .79, .92, and .91 for social need scale succorance, achievement-recognition, and playmirth, respectively, for a companion fifth grade class twice administered the "all children known" reference frame instruction. For the standardized Syracuse Scales instructions using the "all persons known" reference frame, median fifth grade retest correlations of .68 and .79 are reported for social need scale succorance and achievement-recognition, respectively (Gardner and Thompson, 1959, Table 8).

Table 2.4

Comparison of Median Individual Rating Indices Obtained in a Sixth and Fifth Grade Class Using Two Different Explicit Reference Frame Instructions

Need Succorance Scale

Class	Reference frame instruction	Median of ratings		Median σ of ratings		Median inter reference correl.	
		Made	Rec'd	Made	Rec'd	Made	Rec'd
6C (N=32)	"All Children"	19.7	15.7	10.1	11.4	.49	.57
	"All Persons"	12.2	12.1	8.5	11.6		
5A (N=27)	"All Children"	24.2	23.3	11.6	9.4	.49	.30
	"All Persons"	21.2	22.4	11.7	9.8		
	Need Achievement Recognition Scale						
6C (N=32)	"All Children"	20.3	21.3	11.0	11.8	.60	.56
	"All Persons"	13.9	17.6	10.2	9.9		
5A (N=27)	"All Children"	21.5	23.8	12.0	10.5	.65	.31
	"All Persons"	17.7	19.0	12.4	10.1		
	Need Playmirth Scale						
6C (N=32)	"All Children"	19.3	21.4	15.0	14.1	.62	.56
	"All Persons"	15.8	17.9	12.6	11.9		
5A (N=27)	"All Children"	21.2	22.9	12.6	11.5	.37	.39
	"All Persons"	20.8	21.4	12.3	10.4		

Note: All entries are median values based on means, sigmas, and inter reference correlation coefficients computed for each of the first five pupils in the two classes having complete test and retest data.

The shift in median individual rating means for the three social need scales for Classes 6C and 5A reflects essentially the same pronounced pattern of decreased ratings using the second, more extensive explicit reference frame instruction. The generality of this decrease was further examined in terms of a count of the number of pupils making higher or lower average ratings on the three social need scales in their second test administration. Of 31 sixth graders, 21 were found to have made lower average ratings on the "all persons known" administration on each of the three social need scales; three averages were unchanged on each scale. In the fifth grade class of 26 pupils the average ratings made on the "all persons known" administration were higher for 17 pupils on social need scale succorance (two unchanged), for 14 pupils on the social need scale achievement-recognition (four unchanged), and for 13 pupils on the social need scale playmirth (three unchanged). Whereas the majorities for these two classes are far less overwhelming than those earlier reported for Classes 6A and 6B, the generality that pupils tend to make higher ratings using the "all children known" reference frame, especially in the sixth grade, is supported.

The changes in the variability of individual ratings made and received under the two explicit reference frame instruction administrations tend to follow those reported for mean ratings made and received (Table 2.3). For the sixth grade pupils the median sigmas for individual ratings made and for those received were consistently smaller for the "all persons known" administrations indicating a reduced use of the full five-category rating scale following the "all persons known" reference frame instruction. The fifth grade data fails to support this pattern of decreased variability in individual ratings, median sigmas for Class 5A remaining relatively stable across changes in reference frame instruction. The difference between the sixth and fifth grade data is moderated however, upon examination of each of the 30 pairs of sigmas computed for the five pupils in each class. For 21 of the 30 comparisons in the sixth grade class the variability was found to be greater using the "all children known" reference frame instruction; one tie occurred. In the fifth grade class the variability was greater for this more restricted reference frame instruction in 18 of the 30 comparisons.

The twelve median inter reference frame correlations are relatively similar for individual ratings made and for individual ratings received, ranging between .30 and .62. The correlations between sets of ratings made express the extent to which individual pupils as raters tend to similarly order their several classmates following two different explicit reference frame instructions; the correlations between sets of ratings received, the extent to which individual pupils as ratees tend to be similarly ordered by their several classmates following two different explicit reference frame instructions. The difference between these sixth and fifth grade median coefficients, and sixth and fifth grade median coefficients reported for repeated administration of either of the two reference frame instructions, suggests the extent to which the change in explicit reference frame directions has increased variance in the ratings over that expected due to the more "inherent" instability of the single rating itself.[15] In comparing the Table 2.4 inter reference frame correlations for individual ratings made with those in Table 2.2 it is apparent that the Class 6A and 6B pupils, in shifting from the no reference frame instruction to the explicit reference frame instruction, though making a relatively large displacement along their rating scale, maintain a relatively stable ordering of their classmates in terms of the ratings they assign them; more stable, in fact, than for Class 6C and 5A pupils who make relatively smaller scalar shifts generally.[16]

An addendum perhaps should be made here with respect to test order effects; that is, possible change in ratings simply due to the fact of having previously received the first test administration. Explicit control for this possible artifact in this study would have involved additional classes in which the presentations of the differing reference frame instructions were reversed. The highly probable memory effect on a no reference frame administration following an explicit reference administration ruled out this possibility for the 6A and 6B classes. The retest stabilities of ratings made and received were, however, examined using additional classes of elementary pupils in the same school building as that of Classes 6C and 5A. This retest stability data is based on repeated administrations using the "all children known" reference frame instruction. The possibility that the lower means obtained in Classes 6C and 5A using the "all persons known" reference frame instruction in the second administration might be a result of "retesting" per se rather than change in reference frame instruction was suggested by a previous study which reported a pattern of lower retest means obtained twice using the standardized Syracuse Scales format (deJung and Kuntz, 1962). This pattern of lower retest means did not materialize in the present study (see Tables 5.2, 5.3, 5.5, and 5.6 in Section V). Further, the amount of change with retesting using the same explicit reference frame instruction was generally considerably less than that obtained for retesting using a different explicit reference frame instruction. This supports the interpretation that the obtained Class 6C and 5A mean changes reflect effects on rating due to use of different reference frame instruction as apart from simple retest effects. However, in the absence of an "all persons known" - "all children known" sequence of reference frame administrations, data directly relating to the further argument of negligible order effect is not available.

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[15] Median retest correlations for a fifth and sixth grade class twice administered the "all children known" reference frame ranging from .72 to .88 for individual ratings made and from .62 to .77 for individual ratings received. These test-retest administrations are described in Section V, A. For the standardized Syracuse Scales instructions using the "all persons known" reference frame, fifth and sixth grade median retest correlations in the high .60's and .70's have been reported for individual ratings made (Gardner and Thompson, 1959, Table 5). In terms of these data, the difference would seem to be, conservatively, about 20 correlational points, an increase from an r of about .55 to one about .75, or an increase in possible common variance of about 25 per cent. This estimate is to be regarded, at best, as a tentative one in view of the minimal data supporting it.

[16] This contrast suggests an interesting hypothesis that relatively minor administratively induced scale redefinition may result in greater ambiguity regarding rerating of ratees than would a more major scale redefinition.

In summary, the question of possible differences in ratings made and received from others using two different explicit reference frame instructions was examined in terms of data obtained for a sixth and fifth grade class. Most pupils were found to rate their classmates lower using the wider "all persons known" reference frame instruction. The averages for ratings received from classmates under the two explicit reference frame instructions were highly correlated; those for the ratings made of classmates in the sixth grade somewhat less so. The considerably lower inter reference correlations for individual ratings indicate that ordering within ratees and within raters, considering here the individual ratings made and received, respectively, by a single rater or ratee, varies substantially with the introduction of different explicit reference frame instructions. That is to say, a considerable variability, more than expected in terms of estimated reliability of individual ratings, apparently exists on the individual rating level, pupils as raters not infrequently reversing themselves as to which classmates they chose to rate higher and lower using the different reference frame instruction.

Comparing the changes in ratings for the no reference frame-explicit reference frame instruction administrations with those for administrations using two alternative explicit reference frame instructions, the rating shifts are more gross for the former and affect even the relative ordering of the average ratings pupils make of their classmates. In general, the rating data from the four classes twice tested using different reference frame instructions strongly support the need for explicitness of instruction in helping the rater develop a common inter pupil frame of reference. The data presented do not permit answer of the question as to which reference frame is best for the social need scale testing of a given rater population. They do, however, strongly support argument that without a common structured reference frame, interpretations of either inter group or intra group comparisons of obtained social peer ratings are hazardous. It is further evident in view of the obtained differences in ratings made in response to two alternative reference frame instructions, differences not explainable in terms of variability associated with repeated administrations using identical reference frame instructions, that pupil rating responses are sensitive to their instructed reference frame, that they are attending, in part at least, to cues provided by the names of their referent persons.

SECTION III[1]

RECALL POPULATIONS: SIZE, SHAPE, AND SELECTION FOR REFERENCE FRAME

A. Discussion of Problem:

The conceptualization of a large reference population and the bisectioning of this population into a five person frame of reference in terms of a given social need situation are central to the Syracuse Scales procedures for obtaining peer ratings. All argument for inter pupil and inter class comparability of rating critically depends upon the rater's selection of appropriate referent persons. The meaning of any given pupil's ratings is defined by his matching or comparing of his classmates with these referent persons. The proper initial positioning of the referent person now identified as "most like" the classmate being rated is the basis of this meaning.

The data presented in Section II support argument that pupils as raters do attend to their selection of reference persons, that with different explicit instruction for selection of referent persons both a scalar shift in the general level of ratings made and changes in scatter of these ratings result. The further questions explored in this section relate to a description of the pupil's parent population of persons known to him and his choice of persons from this larger population for use in his reference frame. Essentially three questions are asked: (1) How large is the pupil's available reference population; how many persons constitute his pool of potential references? (2) How are persons in this available reference population distributed with respect to their perceived need satisfaction potential in some given social situation? (3) To what extent do pupils properly select persons from this reference frame?

In general, these questions derive from the requirements for inter group comparability of ratings. In their initial development of the Syracuse Scales, Gardner and Thompson (1956) were faced with the problem of making ratings of ratees in one group meaningfully comparable with those made by different raters in a second or third group. Their solution was to

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[1] A portion of the material appearing in this section was presented at the 128th annual meeting of the American Association for the Advancement of Science (deJung and Edmonson, 1961). A fuller report is currently being prepared for publication in Child Development.

have each rater employ a psychologically maximum rating continuum of least to most. The extreme or anchor positions on this scale, reflecting at one end the absolute minimum referent person of all persons known to the rater and at the other end the absolute maximum referent person, are defined as psychologically equivalent across raters. Equivalence (across raters) was then established for the three remaining reference positions by definition of midpoint locations as psychologically equidistant from the "two end points of the line segment" (Gardner and Thompson, 1956, p. 49).

In terms of the use of their reference populations, the foregoing procedures make two major requirements of the prospective rater: (1) That he recall a population of persons known to him, and, (2) that he identify from within this population his two most extreme persons (for placement at either end of his preference scale for a given social need situation) and then an additional three midpoint persons. The minimum possible size of his available reference population is, of course, the size of his ratee group since all persons to be rated must be known to him. Logically, however, his minimum number offers little advantage over the within class rank order or nominational approach with its built-in insistence on fixed distributions and means (see Section II). A considerably larger reference population is clearly an implied requirement for meaningful rater development of the reference frame. The optimum size of such a population for any given subset of raters would be a matter of empirical demonstration. In the absence of more definitive evidence, Gardner and Thompson suggest as a reasonable minimum that the reference population be not smaller than three times the number of persons in the ratee group (Gardner and Thompson, 1956, p. 55).

The task of building an approximately equal interval scale of referent persons is, perforce, the rater's responsibility. His is the problem of selecting persons equidistant from a better and a less good person along a continuum of social need satisfaction potential. Apart from repeatability either in the administratively simpler retest situation or in the private, more persistent, interview situation, his success or failure in meeting this task has generally remained uncontested.[2] True, a general perusal of referent names has on occasion forced examiner concern regarding the appropriateness of a given rater's selections, but aside from the logical discard of an obviously blatant misconstruction of the reference frame, reference selections have been accorded a face acceptance.

Considerations, however, of the practicality of a downward extension of the Syracuse Scales format for the testing of mentally retarded school children and their younger classmates called for a closer look at requisite rater behaviors. Some skepticism was aired regarding the general ability of the public school retardate to conceptualize an other than immediately present aggregate of persons known to him, and, in particular, to select from this aggregate appropriate others as referent persons. In ensuing discussion this skepticism generalized to all elementary school youngsters. Gardner and Thompson had earlier suggested that "the bisection procedure might not be a feasible approach for very young or dull subjects" (Gardner and Thompson, 1956, p. 54). Rutherford, in her pioneering work in adapting the Syracuse Scales format for group administration in the elementary school class, stressed the dependence of the child's understanding what is wanted of him in selecting proper referent persons (Rutherford, 1955, p. 23). The question of difficulty level of the reference frame tasks led to a more specific concern as to the nature of a child's possible reference population. How many persons could elementary age youngsters recall as known to them? What were the relative frequencies of these youngsters' social need satisfaction ratings of their recall persons? What correspondence would maintain between the relative preferences indicated for those five recalled persons as members of a recall population and their subsequent (or earlier) selection within the five person frame of reference as required by the Syracuse Scales administrations?

The second of these three questions, in effect, stemmed from a more specific one: Would social need satisfaction ratings for these recall persons be approximately normally distributed?

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[2] Gardner and Thompson report evidence relating to their assumption of equal-interval scales in terms of highly comparable interval sizes obtained for four of their social need scales following a modification of the Thurstone scaling procedures (Gardner and Thompson, 1956, p. 132-151). This analysis of the cumulative distributions of obtained Syracuse Scales ratings, however, is to large degree independent of the raters' scaling of his referent persons.

This question pertains to the appropriateness of the initial guideline instructions for developing a reference frame. In introducing the rater to the concept of individual differences with respect to given social need situations and as an aid in stimulating other person recall, the Syracuse Scales format presents the rater with a somewhat bell shaped stick figure pictogram. The rationale for this normal distribution approach is given by the authors in terms of a generalization from biological data logically supported by phenomenological experience (Gardner and Thompson, 1956, p. 46-47). Essentially, the authors suggest that:

> "When an individual evaluates his fellow men on almost any social or psychological attribute he tends almost invariably to locate only a few at the extremes, the majority near the 'average,' and to 'tail off' as he moves from the unimodal center toward the extremes. These psychological tendencies in man define the general procedures for generating a 'normal curve'." (Gardner and Thompson, 1956, p. 46.)

In the interests of instructional simplicity it is pertinent to inquire as to the utility and appropriateness of the normal curve model.[3] The utility question might be resolved by a finding of "no differences" in the reference frame persons selected and between ratings made with and without instructional reference to normality.[4] Similarly, non appropriateness would be defined or at least suggested by other than normal appearing distributions of affective responses made of a large population of recalled persons by the prospective raters. Given non supporting evidence in either instance, parsimony would dictate a simpler recall instruction.

B. Testing Procedures:

In the late spring of 1961, plans for collecting data relevant to these questions were implemented and two sixth grade regular classes, one in a southeastern Kansas community and one in a school system suburban to Kansas City, Kansas, were selected for initial testing. During the summer a class of junior high age educable mentally retarded children regular enrolees in the Children's Rehabilitation Unit of the University of the Kansas Medical Center in Kansas City, Kansas, were also tested. An additional class of younger mentally retarded also enrolled in the Children's Rehabilitation Unit were partially tested. A class of regular third graders in another school system (suburban to Kansas City, Kansas) were similarly tested during the following spring.[5] A description of these five classes of pupils in terms of class, sex distribution, class size, chronological age and intelligence test scores is provided in Table 3.1.

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[3] Explicitly the normality assumption here is that, given an equal interval scale, the individual's social preferences with regard to a large reference population will be normally distributed. With respect to testability, this assumption is somewhat circular; that is, the equal interval scale properties and the shape of the distribution are operationally interdependent.

[4] This first approach was not followed. Anticipated problems of low incidence of duplication of reference frame persons even under conditions of exact replication of reference frame instructions suggested a probably inconclusive comparison here.

Table 3.1

Distributions of Sex, CA, and IQ for Three Classes of Public School Pupils and Two Classes of Retarded Children Providing Recall Data

Class	Sex			CA (mos.)			IQ[1]		
	Girls	Boys	Total	$\bar{X}$	σ	Range	$\bar{X}$	σ	Range
6D	17	14	31	141	2.1	138-145	111	10.7	84-131
6E	7	12	19	143	5.8	137-155	105	12.1	79-121
3A	12	12	24	104	4.7	99-121	112	10.2	91-133
SpA	5	5	10	174	11.9	159-198	64	12.7	45-86
SpB	5	4	9	120	16.8	93-143	68	11.1	51-85

[1] IQ data for Class 6D is based on the Detroit Alpha Test of Mental Maturity, for Class 6E on the Kuhlmann Finch Intelligence Test, for Class 3A on the SRA Primary Mental Abilities Test, for the two special classes on the Wechsler Intelligence Scale for Children or the Stanford Binet Form L.

The testing procedure for the sixth graders involved three sessions of class time and a supplemental writing session at home. The two classes of retarded children and the third grade children received individual instructions from an examiner who wrote the recalled name as supplied by the pupil. Each sixth grade pupil was responsible for the legibility of his own list. Instructions to all five classes of children were verbally administered by one of three examiners and varied slightly with respect to the specific responsiveness of the pupil or pupil group. For the two initial sixth grade administrations the examiners were instructed to simply tell the children that we wished to know how many people they could name; persons whom they had known at some time. Only persons personally introduced to the pupil; that is, persons they had had contact with, were to be included as known persons. Television personalities, political or sports figures, etc., were excluded. Pupils were told that spelling was not crucial except that they needed to be able to recognize who it was they meant. At the end of each minute the children were told to draw a mark under the last name written and to continue writing.

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[5] The writer wishes to express his appreciation to Ruth McLean who collected these data.

Due to differences in class time available, the first sixth grade class (Class 6D) wrote only 10 minutes before being stopped and told to take their lists home. The second sixth grade class (Class 6E) wrote for 12 minutes, complained of writer's cramp, stopped, relaxed by conversing with one another for about two minutes, and then wrote for 13 more minutes. A quick drop in average rate of recall was noticed in both classes from about 15 names written in the first two minutes of recall time to a relatively steady rate of five or six names per minute for the remaining eight minutes. After the brief rest period Class 6E pupils responded with a slightly increased rate of seven names in the first minute but then tapered off to about five names per minute for the remaining 11 minutes of class time. As they were being dismissed the children were told to take their lists home and complete them as best they could and return them in two days. Adult or sibling help in recall was permitted but they were to write the names themselves and they were only to include persons they remembered knowing.

Two days later the examiners again met their classes. The social need situation succorance was introduced[6] in each class and discussed, with pupils encouraged to volunteer personal examples. The pupils were then instructed to rate all of the persons on their recall lists on a five point rating scale in terms of this social situation. A rating of one was to be given "to persons on the list you would not want to talk with when you were unhappy or had problems or were in trouble." The rating of five "would go to persons you would like very much to talk to when you were unhappy or in trouble." Persons rated three were about in the middle. Persons about half-way between middle and low and middle and high were to be rated two and four, respectively.

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[6] The statement read to the class was quite similar to that defining the first of the two social need situations presented in the standardized administration of the Elementary Form of the Syracuse Scales of Social Relations. "Sometimes we are blamed for something we didn't do. We try to explain that it isn't our fault, but they don't listen. They don't believe us. This makes us very unhappy. If we knew someone who would listen to us and believe us and understand this would make us feel better." In the published scales edition the wording is, "Sometimes you get into trouble and you feel unhappy. It might be that you have been blamed for something you didn't do. Think about some time when you were very unhappy and would have liked to talk over your troubles with some kind, sympathetic person." (Gardner and Thompson, 1958.)

In addition, after completing the ratings, pupils were to identify (circle) the one person of all those they had rated "as the one person you would least want to talk over your trouble with," and to circle "the one person of all those on your list rated five whom you would most like to talk over your troubles with." Approximately one period of class time was required to rate all the recall persons. These ratings were then collected.

In the third and final experimental session, one week later, the Elementary Form of the Syracuse Scales of Social Relations (social need scale succorance) was administered to all participating sixth graders. The standardized instructions were followed, requiring the pupils to develop a reference frame of five persons selected from a population of "all persons known to them" and to rate all their classmates. The administration required approximately 45 minutes of class time. Privacy of the pupils' responses in this and in previous sessions was assured for all data.

During the summer generally similar procedures were followed for a class of ten 13 through 16 year old and a class of nine 8 through 11 year old mentally retarded children (Classes SpA and SpB, respectively). The recall session was generally terminated after 20 minutes. Excepting a few younger children who "refused" to continue or insisted "thats all," the retardate children continued to recall names throughout the 20 minute period though generally at a somewhat slowing rate. They were quite content to stop and change activities. Two children, one younger boy and one older girl, continued enthusiastically supplying names for an additional 10 minutes until the examiner called a halt.

As already mentioned, these pupils were tested individually in private rooms. Aside from the face to face contact, language simplification and substitution of vocal for written performance (the examiner writing each name as dictated) a major difference between these and the earlier sixth grade administrations was the deletion of further home listings. This was decided to avoid the anticipated problem of having to determine how many of the names on the retarded child's return recall list would be names which he might actually recall given more time and how many would be names the parent or sibling writing for him would initiate on the assumption that he remembered them.

As in the case of the sixth grades the recall procedures were followed a few days later with a second session in which the retarded pupil was required to rate each of his recall persons with respect to the social need situation succorance. As the examiner read each name she referred to the social need situation and asked the pupil for his rating. The conceptualization of the need succorance situation and rating task appeared too difficult for the younger retarded children (Class SpB) and no data regarding their ratings of others were obtained. The following week, again in individual sessions, social need succorance and achievement recognition of the Syracuse Scales of Social Relations were administered to the older retarded pupils, the younger group remaining untestable.

The individual testing for third grade class (Class 3A), essentially followed that of the older retarded pupils with the singular exception that these third graders had previously been tested approximately three months earlier, both individually and in group administration, using a Syracuse Scales format incorporating some language simplification but retaining the "all persons known" reference frame instruction. Instead of readministering the Syracuse Scales in a third session, reference frame data and peer ratings obtained in the individual administrations of the Scales (the retest session) were used for this class. Generally, the third graders dictated for 25 minutes before tiring, at which time the session was terminated. The two exceptions to this were the one child who refused to continue after 15 minutes and the second, an exceptionally respondent child, who was permitted to remain for over 40 minutes.

Table 3.2

Pupil Recall Populations of All Persons Known to Them: Number of Names Recalled, Percentage of Different Ratings Made, and Use of Recalled Persons in Syracuse Scales Reference Frame

Sex	CA (mos.)	IQ	Number of names recalled		Percentages of different ratings assigned to total persons recalled					Ratings assigned to Syracuse Scales referent persons[1]				
			aver/min.	total	1	2	3	4	5	Least	Bet.	Med.	Bet.	Most
(Sixth graders)														
F	142	114	6.8	272	80	10	6	2	2	1*	NL	3	3	5*
F	140	124	6.0	450	74	9	7	3	7	1*	1	5	5	5*
F	140	115	5.1	183	69	15	7	5	4	1*	1	5	5	5*
F	141	99	5.7	242	69	14	11	3	3	1*	3	5	5	5*
M	155	---	4.3	593	63	9	8	8	12	( )	2	5	( )	5
F	142	131	6.8	347	60	11	13	12	4	1	1	3	4	5*
M	137	115	6.0	158	60	11	12	11	6	NL	NL	5	5	5*
F	142	104	4.5	149	56	18	10	8	8	1	1	3	4	5
F	140	113	5.4	306	53	11	11	3	22	1	2	3	1	NL
F	142	118	4.4	153	51	11	11	11	16	1*	5	5	5	5*
F	138	110	4.8	237	48	35	12	4	1	2	2	2	2	2
F	143	113	3.9	162	47	7	20	4	22	1*	4	5	4	5*
M	141	89	2.8	84	46	10	22	7	15	1	3	3	5	5*
F	144	---	6.6	226	42	18	16	12	12	1	2	3	5	5
F	140	126	6.4	304	40	28	19	7	6	1*	3	5	5	5*
M	149	---	4.2	200	39	25	18	13	5	1	4	4	3	5
F	142	90	5.1	163	37	19	21	12	11	1*	1	2	5	5*
F	138	119	6.7	236	36	35	17	9	3	1*	5	4	5	5*
F	139	114	5.6	207	36	21	16	18	9	1*	1	3	5	5*
M	140	---	5.9	137	34	14	22	16	14	4	5	5	5	5*
M	142	114	5.2	133	32	30	16	16	6	1*	2	5	5	5*
M	140	108	4.5	212	31	28	25	13	3	1*	4	4	5	5*
M	138	110	8.2	216	31	14	19	11	25	1*	2	5	5*	5
M	144	84	4.7	121	31	10	11	8	40	2	5	5	5	5*
M	138	121	4.9	219	30	10	8	24	28	1	3	5	5*	5
F	143	107	3.6	161	29	26	17	14	14	1	3	2	5	5*
F	141	---	8.2	600	26	12	16	17	29	1	1	5	4	( )
M	141	114	4.5	168	26	28	19	20	7	1	3	4	4	5*
M	144	---	6.3	137	26	25	14	12	23	1	1	2	3	5
M	142	94	3.3	145	25	8	18	25	24	1*	3	5	4	5*
M	145	107	4.9	204	23	14	18	10	35	1*	1	3	5	5
F	138	107	4.8	293	20	6	12	9	53	1*	5	5	5	5*
M	137	115	6.8	336	18	24	42	14	2	2	NL	1	1	5*
F	143	110	9.1	648	18	9	13	15	45	No Test				
M	144	124	5.6	320	17	44	30	7	2	1*	2	3	4	5*
F	139	125	4.9	131	16	40	27	12	5	1*	3	NL	5	5*
F	134	---	6.8	355	16	22	29	19	14	1	3	5	5	5*
M	154	79	4.2	350	15	4	25	1	55	NL	5	5	1	5
F	147	99	8.7	373	14	10	14	20	42	No Test				
F	142	---	6.1	216	11	12	22	26	29	2	4	5	5*	5
M	153	---	8.2	188	11	11	41	32	5	NL	5	4	5*	4
M	139	103	5.1	240	10	9	17	23	41	1	3	5	3	5
M	139	---	6.8	674	8	12	31	26	23	1	3	3	5	5
M	141	99	6.5	137	7	18	33	20	22	1	3	5	5	5*
M	138	106	4.2	78	5	23	40	3	29	1*	3	5	5	5
M	138	109	2.7	194	5	16	3	16	60	1*	4	3	5	5
M	239	113	7.5	200	4	9	34	32	21	NL	4	5	5	5
M	147	100	7.8	297	3	17	28	23	29	2	5	5	5	5*
M	138	118	5.2	290	2	5	16	19	58	1*	5	3	5*	NL
F	142	---	10.4	600	1	9	53	34	3	1*	5	4	NL	5

(Table 3.2 continued)

Sex	CA (mos.)	IQ	Number of names recalled		Percentages of different ratings assigned to total persons recalled					Ratings assigned to Syracuse Scales referent persons[1]				
			aver/min.	total	1	2	3	4	5	Least	Bet.	Med.	Bet.	Most
(Third graders)														
M	105	110	6.2	148	21	16	18	25	20	1	1	2	( )	5
M	100	130	3.1	84	19	5	14	14	48	5	NL	5	( )	5
F	102	133	3.1	93	18	30	19	22	11	( )	4	2	3	4
F	100	130	5.0	134	14	22	19	26	19	( )	NL	5	5	5
M	101	115	3.3	73	14	7	15	19	45	NL	3	NL	5	( )
F	107	110	4.5	122	12	9	16	20	43	3	5	5	5	5
F	100	115	4.4	114	12	4	18	6	60	5	5	( )	5	( )
M	110	100	4.7	118	11	6	12	12	59	No Test				
M	106	106	3.0	76	10	6	11	24	49	3	5	NL	5	5
F	102	112	4.3	130	8	14	22	35	21	3	5	4	NL	5
M	100	118	4.0	101	8	8	13	30	41	1	4	4	2	4
F	104	104	3.1	75	8	7	13	21	51	4	5	NL	5	5
M	110	91	4.4	114	6	4	14	33	42	1	2	5	( )	( )
F	100	117	4.5	108	5	16	29	14	36	5	5	5	5	5
M	100	111	4.4	114	5	12	30	26	27	1	3	5	( )	5
F	102	98	4.4	118	5	5	9	20	61	NL	5	( )	5	5
M	106	108	3.3	50	4	10	18	22	46	5	4	5	5	5
M	106	107	4.7	123	4	3	4	17	72	4	4	( )	4	5
M	101	113	4.6	214	4	2	17	32	45	5	4	( )	( )	4
F	99	105	3.0	71	3	0	14	24	59	NL	NL	5	5	5
M	106	117	3.2	95	1	14	18	28	39	( )	NL	5	4	NL
F	121	100	5.5	153	1	12	13	24	50	4	NL	5	NL	5
F	103	122	5.5	137	1	3	9	23	64	4	NL	5	5	5
F	104	120	4.0	153	1	0	1	8	90	( )	5	5	NL	5
(Junior high retarded)														
M	165	65	3.7	74	43	6	11	11	29	2	NL	2	1	5
M	159	62	2.5	52	30	12	17	11	30	NL	1	NL	NL	5
M	167	58	2.3	46	20	0	47	0	33	1	3	3	3	NL
F	176	70	7.8	208	19	2	3	5	71	NL	1*	5*	NL	5
F	190	86	6.0	121	18	21	8	39	14	1*	2	NL	5	NL
M	163	52	6.0	123	16	10	22	11	41	1*	2	3	NL	5*
F	178	52	3.2	66	12	0	9	20	59	1*	1	5*	NL	5
F	165	45	1.8	44	7	9	11	16	57	1*	1	5	NL	5
M	198	84	3.2	65	3	2	21	14	60	NL	1	5	5	5*
F	174	61	3.6	73	No Ratings					No Test				
(Intermediate retarded[2])														
F	103	63	1.1	23										
F	103	67	3.0	16										
F	143	51	3.7	56										
M	93	81	6.4	32										
M	111	70	2.4	47										
F	139	57	2.8	55										
M	124	79	4.4	44										
M	136	85	3.9	118										
F	124	56	2.6	51										

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[1] Asterisk indicates agreement with least and most in recall population (not available for third grade pupils). NL indicates not listed in recall population. ( ) indicates uncertain identification with recall population.

[2] Intermediate retarded children did not provide ratings or Syracuse Scale data.

For each pupil, counts were made of the number of persons they recalled. To facilitate comparison across classes with varying class recall periods, the average number of names recalled per minute of class time was computed. Counts were also made of the number of different ratings on the five point preference scale (social need succorance) given by each pupil to all of his recalled persons. These counts were converted to percentages of total ratings made by that pupil. For those pupils receiving the Syracuse Scales administrations (i.e., all excepting the younger retarded group), the names written in the five reference frame boxes on the Syracuse Scales were compared with those on their recall lists. The incidence of mutual inclusion (a recall person also used as a referent person) and the rating he received on the recall lists were recorded for each reference frame position. Table 3.2 presents these data, i.e., the number of names recalled, the percentages of different ratings assigned recalled persons, and the ratings assigned to Syracuse Scales referent persons for the full roster of all pupils tested. Each pupil is further identified by grade, sex, chronological age at time of testing, and intelligence test score as recorded in current school records. The pupils are ordered within class in terms of positive skewness of preference ratings, the pupil within each grade making a greater percentage of lower ratings listed first. Class summary statistics for these tabulations are presented in Table 3.3.

C. Size of Recall Population:

Considering the sixth grader recall lists first (upper section of the fourth and fifth columns of Table 3.2), it is immediately apparent that the 50 sixth graders tested varied considerably with respect to their average rate of recall in class (from as few as 2.7 names per minute to as many as 10.4 names per minute). Within the first 10 minutes of class recall the slowest sixth grade pupil wrote 27 names. The average for those 10 minutes in Class 6D was 52 names, with a range of from 27 to 82 names; in Class 6E, the average for the first 10 minutes was 68 names, with a range of from 34 to 105. With respect to the total number of names recalled by sixth graders both in class and at home, inter pupil differences became even more dramatic, a range of from

78 to 674 names! The product moment correlation coefficient computed between the average rate of recall in class and the total number of names recalled by the 50 sixth graders was .55 suggesting a definite tendency for the faster recallers (writers) in class to also write more names at home. That this recall and writing task is relatively independent of intelligence (within the limitations provided by sixth grade placement) is suggested by the relatively low obtained correlation of .22 between total number of names recalled and intelligence test score.

The average number of names recalled by pupils in the two sixth grades separately and combined are reported in Table 3.3. The combined average of 261 is easily above any minimum required for meaningful selection of reference persons, nearly nine times the size of an average class of 30 pupils. The two sixth grade classes clearly differed with respect to their average number of total names recalled; means of 203 and 356 for the more rural and for the more urbanly located classes, respectively. Though differences in class administration (see Procedures, above) undoubtedly contributed to some of this difference, the effects of other factors such as home support, and, of course, the number of persons accessible to and known by these two sixth grade classes seem indicated. The limitations imposed by the exploratory (non standard) procedures followed in these two classes caution against more definitive causal statements regarding their differences. However, it should be stressed that the fact that class differences in recall behavior for whatever cause, were obtained is an aside to the initiating concern explored in this investigation; namely, are pupils' recall populations sufficiently large for meaningful selection of reference frame persons? The answer for the sixth graders is a clear, yes.

Table 3.3

Class Averages for Recall Data Presented in Table 3.2

Class	N	Average number of names recalled		Average percentages of different ratings assigned to recalled persons				
		aver/min.	total	1	2	3	4	5
6D	31	5.3	203	39	20	17	10	14
6E	19	6.4	356	19	12	24	19	27
6D+6E	50	5.7	261	31	17	19	14	19
3A	24	4.2	113	8	9	15	22	46
SpA	10	4.0	87	19	7	17	14	44
SpB	9	3.4	49	--	--	--	--	--

The third grade recall data is presented in the second section of Table 3.2. Pupils in this group dictated their recalled persons to the examiner for approximately 25 minutes depending on the pupil's responsiveness. The average rate of recall (dictation) for this class ranged from a low of three names per minute to a high of 6.2 names per minute. The average for the class as a group was 4.2 names per minute for an average of 27 minutes of dictation time. No "at home" lists were required of this class. The total number of names recalled in the dictation period for these third graders (column 5) ranged from a low of 50 for one boy who was tested for only 15 minutes, to a high of 214 for a much more persisting and responsive classmate. The average number of names recalled for all third graders was 113 names, nearly five times the size of their class of 24. Essentially, a zero correlation (r = .01) between number of names dictated and the pupil's intelligence test score was obtained for this class.

The lower two sections of Table 3.2 contain the recall data for the two retarded groups. As was the case for the third grade class these pupils dictated their recall names to their examiner. The dictation period was terminated by the end of 20 minutes except for two very responsive children who were permitted an additional 10 minutes. The average rate of recall for the older retardates ranged from a low of 1.8 names per minute to a high of 7.8 names per minute. The average rate for the 10 older retardates was four names per minute. The total number of names recalled for this group ranged from a low of 44 names to a high of 208, again a considerable variability in the size of the pupils' recalled lists. The average total number of names recalled for this group was 87.

The younger retarded children, as expected, reported fewer names. The average rate of dictation for these children as reported in column four tends to be misleading. The lowest rate of just more than one name per minute is reported for a child volunteering 16 names in his first five minutes, five names in the next five minutes, and only one additional name in each of the next five minute intervals for a total of 23 names in the 20 minute session; the fastest rate for a child dictating 32 names in the first five minutes whereupon his recall session was terminated upon his refusal to cooperate further. The average rate of dictation for the group was 3.4 names per minute for the time they were with the examiner, an average of approximately 20 minutes. The total number of names recalled for these children ranged from a low of 16 to a high of 118. Though the average total number of names recalled by this group was 49, over five times their present group size, the difficulty and reluctance of several of these children in recalling names of others suggests a general inability of this group in meeting even the minimum requirement for reference frame selection, namely, conceptualization of reference population of three times their rating group. As a group this class was found to be untestable on the Syracuse Scales format for other reasons; namely, their apparent inability to deal with concepts of "middle" and "halfway between," questionable ability to retain the notion of the social need situation and especially an inability to establish a frame of reference. A more complete discussion of these and similarly retarded children is provided in Section IV.

D. Shape of Recall Population:

As has been described, two days following the recall sessions, each pupil [7] rated each of his recall persons on a five category preference scale (1 = low, 5 = high) in terms of a need succorance social situation. The relative frequencies of the five different possible ratings the pupil might assign his population of recalled others afford a description of the way he perceives his "world"[8] of others with respect to expected need satisfaction in the given social situation. More briefly, these relative frequencies may be said to reflect a generalized affective residue of his experiences with other persons, a totaling of evaluations he makes of persons known and remembered by him.[9]

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[7] The youngest retarded group appeared unable to cope with the rating scale directions (see above paragraph) and was excused from this task.

[8] More properly, "a more available sampling from his world of others." Without doubt the pupil has known and could recall (given added time, motivation, support, etc.) additional others. A "true" upper limit of recall is experimentally unknowable except within some prescribed operational procedures.

[9] Though the obtained ratings are crude, both in terms of scale instruction to rater and in the relatively rapid, unreflective evaluations required of the rater (ratings of an average of over 250 different persons in a single session), cumulatively they provide an illuminative description of inter pupil differences in perceptions of others. More refined procedures would, of course, be embodied in further similar data collecting experiments (see Section VII).

The relative frequencies of the five different possible ratings each pupil made are presented in the middle section of Table 3.2 as cumulative percentages to permit more immediate comparisons across raters. Examining the entries for the upper elementary pupils first, it becomes apparent that very few of the sixth graders rated their recalled populations of "all persons known" predominantly as average or in middle with respect to the given social need. Only 11 of the 50 sixth graders rated more than 25 per cent of persons recalled as mediumly sympathetic and understanding. Thirty of the 50 sixth graders rated 25 per cent or more of the persons on their lists of all persons known in the lowest "not wanted" category; 10 sixth graders (20 per cent of those tested) rated over half of all persons recalled by them in this lowest category. A reverse distribution, that is a 50 per cent or greater pupil usage of the "very much preferred person" rating category in rating their "all persons known" population, was indicated by four (eight per cent) sixth graders. Another 10 sixth graders rated over 25 per cent of their recalled persons as "very much preferred."

The general picture of the sixth grade rating frequencies in Table 3.2 suggests two more common patterns of pupil rating behavior--a pronounced use by most (approximately two-thirds) pupils of extreme lower ratings, and a nearly as pronounced use by most remaining pupils of the extreme upper ratings. Moderacy (heavy use of the middle or average category) with respect to other person preference is almost completely lacking. An evaluation of some 13,000 recalled persons by 50 sixth graders is involved here. This contradicts argument for a normal distribution of social attributes and suggests a methodological impasse with respect to realignment into a common (across pupil) unimodal distribution.

Since, in compiling the Table 3.2 roster, possible differences between the two sixth grades, Class 6D in the Southeast Kansas Town and Class 6E suburban to metropolitan Kansas City, were canceled, averages in Table 3.3 are reported separately for the two classes. The differences between these classes in the number of names recalled has already been discussed. In addition, it can be seen that these two classes differ with respect to their ratings made of recall persons as well (right upper rows of Table 3.3). Pupils in the more urban area class were generally more lenient in their use of the five category rating scale. Ten of the 14 sixth graders rating 25 per cent or more of their recall persons in the "very much preferred" category were from the more urban area class. Again, as in the differences of total number of persons recalled, interpretations here are confounded by differences in the operational procedures followed in the two class administrations.

The relative frequencies of use of the five different rating categories by the third graders presents a generally euphoric picture. Seven third graders (nearly 30 per cent of the pupils) rated over half of their recall persons in the "very much preferred" category; one child rating 90 per cent of her recall persons in this highest category! An additional 12 pupils rated over 25 per cent of their recalled persons in this category. Only one third grader used the lowest category as much as a fifth of the time, five pupils using it less than three times. The next to the lowest category was almost as unpopular. Of the over 2,700 recall persons named by the third graders only eight per cent were rated as "not wanted," only nine per cent more in the next, more preferential, category. Nearly half of these 2,700 persons were rated as "very much preferred." Again, very few distributions assumed even near normal shapes. Since to date only one third grade class has been tested, no statement regarding the generality of these most lenient ratings can be made for other third grade classes.[10]

For the majority of the retarded group the distributions of their relative frequencies of ratings made follow a negative skew; that is, a preponderance of highly favorable ratings assigned recall persons. The distributions of ratings made for two pupils in this group are U shaped; for one pupil, a trimodal distribution was obtained. Again, non normal appearing distributions are the rule. Inasmuch as the recall data and ratings are based on only nine retardates, generalizations to other retardate groups would be hazardous.

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[10] Unlike the distributions for the 50 sixth graders the distributions for this class could possibly be "guided" into more bell shaped forms without affecting the affective integrity of the pupils' preferences. However, given a second third grade class with a heavy alternative skewness of predominantly low ratings of recalled persons the problem of normalizing would be similar to that for the sixth grade data.

E. Selection for Reference Frame:

One week following the recall session the Elementary Form of the Syracuse Scales, social need scale succorance, was group administered to Classes 6D and 6E and, individually, to the Special Class A pupils. In Class 3A the scales administration preceded the recall session by about three months. For the third graders and for the retarded children the verbal directions for developing the reference frame had been modified in terms of language simplification and to support individual administration. An "all persons known" reference population was used in all four classes calling for pupil selection of a "most," "least," "medium," "halfway between medium and most," and a "halfway between medium and least" person. The names of these five were written in boxes at the top of the pupil's rating sheet and constituted a five person scale for classmate evaluation.

Each pupil's recall list was carefully scanned to identify recalled persons also selected as reference frame persons. The rating assigned these persons on the recall lists were also noted. The last five columns (right section of Table 3.2) describe the recall list identifications and ratings of referent persons. The letters NL indicate referent persons "not listed" among the recall names. Referent persons included on the recall lists are identified by a number, one through five, indicating the rating they received on that list. The asterisk appearing after either the one or five rating indicates that these persons had further been identified as the most extreme "very much preferred person" or as the most "not wanted" person by the circling of that name on the recall lists. An empty parenthesis, ( ), indicates uncertain identification with recall population, for example, "grandfather" written as a referent person and two grandfathers with different ratings written as recalled persons.

The extent to which the recall lists do not fully account for all reference frame persons suggests their incompleteness or the recent acquaintance of formerly unknown persons, this latter possibility, of course, only in the case of the recall list followed by the Syracuse Scales administration. As expected, the very long recall listings of the sixth graders almost completely include all subsequent referent person selections, only 11 of the 240 names used by the sixth graders in their Syracuse Scales reference frame were not previously mentioned as recalled persons. The third grade recall lists were obviously much less complete. The recall lists made after the referent name selection failed to include 16 of the 115 names earlier selected by 22 third graders. Four sixth graders accounted for half of these non recall list inclusions. In the retarded group the inclusion of not previously mentioned referent persons was quite general, each of the nine pupils using at least one referent name not recalled as persons known to him the previous week. Thirteen of the 45 referent names selected for their reference frames had not been mentioned in the earlier recall session. Both the completeness of their recall lists, but more importantly, the saliency of selected referent persons is questionable for these latter two classes.

Administrators of the Syracuse Scales have severally noted the popularity of the parents and other adult relatives as referent persons for the two top categories of the Syracuse Scales reference frame.[11] Especially disturbing was the not infrequent selection of "mother" in the "most" category and "father" as representation of someone "halfway between medium and most." A reasonable interpretation here is that the pupil was improperly bisecting the upper end of his "all persons known" continuum; that his "halfway between" entry (selection) was his second choice for "most" rather than the required more "medium" person. Examination of the recall list ratings given his reference frame persons is relevant to this interpretation.

First, with respect to their general selection of referent persons, the very high incidence of "ones" and "fives" assigned to the two anchor referent persons is clearly evident, for the pupils tested with the recall-Syracuse Scales administration sequence. In the upper classes, all but six of the 37 identifiable referent persons selected as "least" had earlier received the lowest ratings on the recall lists, all but one of the 45 identifiable persons selected as "most" had earlier received the highest ratings on the recall lists. Further, 22 of the 37 "least" had been specifically identified (circled) by pupils as the least in their "not wanted" category, 27 of the 45 most identified (circled) as the "most" in their "very much preferred category." This reasonably consistent selection of referent anchor persons held for the retardate class. Five of the six identifiable referent persons selected as "least" had earlier received the lowest ratings on the recall lists (four of these seven had been circled) and all seven of the identifiable persons selected as "most" had earlier received the highest ratings on the recall lists (two of these seven had been circled).

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[11] Among these, Jean Rutherford, Harold Abel, Lewis Koenigsberg, William J. Meyer, Barbara Edmonson, and the present writer who have carried out research studies involving the Syracuse Scales.

The third grade class recalled and rated their recall persons three months after their Syracuse Scales administration. As previously noted, these pupils were exceptionally euphoric in their evaluations of their recall persons; nearly 50 per cent of their ratings were in the "most preferred category." Though selection of referent persons identifiable as recall persons could have been made of persons subsequently rated as "not wanted," this was not the case. Only four of the 17 identifiable referent persons selected by the third graders as "least" later received the lowest ratings on the recall lists. On the other hand, 16 of the 19 identifiable referent persons selected as "most" later received highest ratings on the recall lists.[12]

Examination of ratings of three middle position referent persons selected for the Syracuse Scales reference frames suggests a prevalent referent selection problem general to all classes examined. Quite clearly the referent persons selected are from the "very much preferred person" end of the rater's recall populations. This is nearly as true for the sixth graders, nearly 60 per cent of whom rated most of their recall persons as below middle on their preference rating scale, as for the high rating third graders. Nearly half of all the selected 226 identifiable reference persons in the sixth graders' reference frames had received highest ratings on recall lists; 31 of the 46 identifiable "halfway between middle and most" referent persons were from the "very much preferred" category. Of the 43 sixth graders supplying identifiable recall ratings for the two above-medium referent persons, 29 selected persons for these two positions both of whom they had earlier rated "five"; 18 of these 29 pupils also selected their "medium" position referent persons from this most preferred category; five of these 18 pupils selected all but their "least" referentpersons from this highest category.

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[12] Due to administrator oversight no identification (circling) of extreme "not wanted" and "most preferred" persons was made by the third graders.

The third graders were very extreme in this respect. Fifty-two out of their 80 referent persons identifiable on their subsequent recall lists were rated as "very much preferred" persons. Of the 12 third graders supplying identifiable ratings for the two above-medium referent persons, nine selected persons for these two positions both of whom they had earlier rated "five"; six of these nine pupils also selected medium position referent persons from this most preferred category. The considerable numbers of unmatchable reference frame and recall list persons[13] for the third graders defeats extension of this comparison. From the entries in Table 3.2, however, it is clear that the majority of third graders later identified their selected medium and even below medium referent persons as "very much preferred" persons. Seven third graders subsequently rated *all* their identifiable referent persons as most preferred!

In summary, three general questions relating to the size of the pupil's available reference population, to his distribution of social need satisfaction ratings made of persons in his population, and to the appropriateness of his selection of persons from this population for referent positions in his Syracuse Scales reference frame were explored in this section. Recall lists of "all persons known to you," ratings of these recalled persons, and selections of referent persons for the Syracuse Scales reference frame were obtained from pupils in two sixth grade classes, one third grade class, and in two smaller classes of retardate children. An examination of this recall, rating, and reference frame data revealed (1) that sixth graders, third graders, and older retarded children were able to recall names of many more persons than the minimum required for meaningful reference construction but that this was less true of the younger retarded group;(2) that the distributions of ratings pupils assigned persons in their recall population were clearly non normal; that for some classes extreme skewness, either predominantly low ratings as in one sixth grade or predominantly high ratings as in the third grade class, was typical for most class members; and

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[1] The reference frame persons were obtained three months prior to the recall data and without an intended "follow up" of the appropriateness of these entries.

(3)that while generally selection of anchor referent persons was in accord with ratings made of them on the recall lists, in all classes a considerable preponderance of referent persons selected for the Syracuse Scales reference frame were highest rated persons on the pupils' recall lists. This last finding of over selection of "very much preferred" persons strongly supports an earlier expectation that pupils improperly bisect their "all persons known" continuum; especially the upper half of this continuum. To the extent that this is a general pupil failing,[14] the argument that the Syracuse Scales format and procedures achieve a reference frame of "psychologically equal" separation is not supported. At any rate, it is reasonable to expect that the required goal of selected referent persons equally spaced along a "least" to "most" continuum might be more easily achieved through referent person selection within a less extensive, more physically similar, recall population. An alternative restricted reference population is discussed in the next section.

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[14] Aside from sampling limitations, the fact that the rating and referent person selection procedures involved only one social need situation, namely social need succorance, suggest possible limited generalizations. On the other hand, this social need situation had been selected by the Syracuse Scales' authors as among the more easily interpretable and generally meaningful, and as pertinent to a wide range of student levels. The wording of the social need situation remains unchanged in the elementary, junior high, and senior high standard editions (Gardner and Thompson, 1958).

SECTION IV

MODIFICATION OF DIRECTIONS AND FORMAT FOR SYRACUSE SCALES OF SOCIAL RELATIONS

The modifications of the directions and format for administering the Syracuse Scales of Social Relations to retarded public school children and to their younger age non-retarded classmates essentially grew out of a series of subinquiries regarding retardate and elementary pupil recall and rating behaviors. The previous two sections introduced data related to pupil use of reference frame instruction and to their conceptualization of populations of "all persons known" to them. Concurrent with these studies a series of interviews were conducted using as subjects both institutionalized and special class day school retardates. These interviews explored the interest, willingness, and ability (skill) of the mentally retarded youngster relating to his rating of peers as to perceived social need satisfactions. In particular, the retardate's ability to deal with the several tasks required of him by the Syracuse Scales procedures was studied. Essentially these procedures require a conceptualization of a reference population, a selection of referent persons from this population, a personally meaningful comprehension of the social need situations, and finally, a matching of peers with earlier named referent persons. Modified instructions for these tasks were tried out.

Two additional inquiries pertinent to anticipated scale modification are discussed in this section. The first involves a rescoring of Syracuse Scales rating booklets using a less finely discriminating scale. Test booklets for two classes of sixth graders were rescored using a simplified five-category scale. Individual ratings made and received and average ratings made and received scored on this modified scale were then compared with those scored using the standard eight-category scale. The second inquiry involves trial testing of peer rating instructions using a simplified three person reference frame in a second grade class. Retest ratings were not obtained for this class until the following year. Though pupil resectioning and a change in follow-up scale format during this intervening period confounds interpretation of the test-retest changes, the initial second graders' acceptance and performance of the rating tasks and the obtained distributions of their ratings made of classmates adds a lower age boundary to administration of reference frame procedures in the public schools.

The modifications[1] of the directions and format of the Syracuse Scales of Social Relations are introduced in the latter half of this section. Relating to the presentation of these modifications, an extensive summarization of frequency distributions of pupil ratings obtained by the modified scale administrations and from classes earlier tested using the standardized scales administrations is presented. Administrator considerations in adapting the modified scale directions for individual testing of retarded children are reviewed.

A. Summary Description of Interview Procedures and Data:

In the spring and summer of 1961 a series of interviews were arranged involving higher level institutionalized retardates at the Parsons State Hospital and Training Center, in Parsons, Kansas, and special class day school pupils at the Children's Rehabilitation Unit of the University of Kansas Medical Center in Kansas City, Kansas. The interviews were conducted by two trained psychologists each with several years of full time working experience with mentally retarded youngsters. Prior to these sessions, the purpose, instructions, and format of the Syracuse Scales of Social Relations were thoroughly discussed with the interviewers. They were directed to generate pupil discussion of peer evaluation, to determine the child's ability to conceptualize a population of all persons known to him and his ability to recall and discriminate among these persons with respect to given social need situations. Various wordings of four possible social need situations (succorance, achievement-recognition, playmirth, affiliation) were tried, at times using one child's discriminative interpretations as a trial presentation made to a second child. Children's understanding of such key instructional words as most, least, medium, halfway between, compare, match, etc., were examined by requiring the children to supply both operational and verbal definitions. Trial modifications of the Syracuse Scales directions and format were administered to those children more apparently capable of following rating scale procedures. Remarks children made to various recall and rating instructions were recorded. Generally, these remarks were spontaneous, some children almost continually supplying anecdotal justification for their selection of referent persons and their subsequent matching of classmates to these referent persons. In all, 12 institutionalized and 21 day school retardates were interviewed. Approximately 100 hours of interview time were involved. The 12 institutionalized children ranged in age from 7 to 14, in IQ (full scale WISC) from 46 to 75, and in grade placement on the California Achievement Test from 1.8 to 3.3. The 21 day school pupils ranged in age from 7 through 15, in IQ (full scale WISC) from 45 to 86 and in grade placement on reading achievement tests from <1 to 5.5. None of these children were orthopedically handicapped or possessed of gross physical anomalies. As a group, in terms of social intellectual and educational achievement, these 33 children are not unlike special classes of retarded pupils to be found in the regular public schools.[2] A summary roster describing the retardate interviewee sample and their ability to cope with the required rating related tasks is provided in Table 4.1.

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[1] As is true of all change, its antecedents may be only generally sketched. The modification of the Syracuse Scales of Social Relations resulted from the inquiries as to pupil recall and rating behaviors, from observations of the problems of children (and administrators) in presenting the Syracuse Scales instructions to younger children, and from the reference frame and peer evaluations made by mentally retarded children in extended interview sessions. In their present standardized form, the Syracuse Scales were found to be unadministrable in classes as young as the third grade.

The data in Table 4.1 indicate a considerable variability among retarded children of approximately the same chronological age and intellective level with respect to their ability to

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[2] A cautioning statement must be made here with respect to the institutionalized children, however. The fact that these children are not in regular public schools is certainly a differentiating factor. Behaviorally and/or in terms of family support or acceptance of them, there are differences, differences which initially resulted in their non regular school placements. As an intellectual and academic counterpart of the less available educable retarded public school pupil, the interview behavior and responses of these children provided descriptive and limiting statements regarding retardate rating repertoire.

Table 4.1

Roster of Higher Level Institutionalized Retardates and Special Class Day School Pupils Interviewed with Respect to Peer Rating Behaviors and Conceptualizations Related to the Syracuse Scales of Social Relations

Sex	CA	IQ[1]	Educ. level[2]	No. of others recalled	Ability[3] to cope with			
					Rating vocabulary[4]	Reference frame positions	Matching task	Differentiation of need situations
F	135	62a	3.3d	97	PA	A	A	A
F	166	75a	3.2d	59	PA	PA	PA	PA
F	154	56a	2.8d	40	PA	PA	PA	NE
F	161	46a	2.8d	46	PA	PA	PA	A
M	129	50a	1.8d	16	NA	NA	NA	NE
F	140	63a	2.0d	73	NA	PA	PA	NE
M	139	60a	1.9d	25	NA	NA	NA	NE
M	155	58a	2.0d	40	NA	NA	NA	NE
M	142	67a	2.0d	51	NA	NA	NA	NE
F	150	59a	---	58	PA	PA	PA	A
M	153	46a	---	23	PA	PA	PA	PA
F	167	46a	---	62	PA	PA	PA	A
F	103	63b	< 1e	23	NA	NA	NE	NE
F	103	67b	< 1e	16	NA	NA	NE	NE
F	143	51a	1.5e	56	PA	NA	NE	NE
M	93	81b	>1.4e	32	PA	PA	NE	NE
M	111	70a	---	47	A	PA	PA	PA
F	120	75b	---	NE	NA	NE	NE	NE
F	139	57b	< 1e	55	PA	NA	NE	NE
M	124	79b	> 2e	118	A	PA	PA	PA
M	136	85a	---	44	A	PA	NE	NE
F	124	56a	< 1e	51	PA	NA	NA	NE
M	113	68c	< 1e	--	NA	NA	NE	NE
M	159	62a	2.6f	52	PA	PA	PA	PA
M	165	65a	3.1f	74	PA	NA	NA	NE
M	163	52a	2.4g	123	PA	PA	PA	PA
M	198	84a	5.5h	65	PA	PA	PA	PA
F	190	86a	2.5g	121	A	PA	PA	PA
F	165	45a	2.9g	44	PA	PA	PA	PA
F	176	70b	2.0g	208	PA	NA	NA	NE
M	167	58a	4.9g	46	PA	PA	PA	PA
F	174	61a	---	73	NE	NE	NE	NE
F	178	52a	2.8g	66	PA	PA	PA	PA

[1] a = WISC; b – Stanford Binet, Form L; c = Merrill Palmer Intelligence Test.

[2] d = California Achievement Test; e = SRA Achievement Series; f = American School Achievement Test Reading Average; g = Gates Advanced Primary Paragraph Reading Test.

[3] A = adequate; PA = probably adequate (with assistance); NA = not adequate; NE = not examined.

[4] Understanding of instructional words used in administering the Syracuse Scales of Social Relations such as "most," "least," "medium," "halfway-between," "compare," "match," etc.

adequately respond to the conceptualizations and tasks required of them. Some mental retardates performed as well as regular third, fourth, and fifth graders in recalling different persons known to them. Some more generally deficient in expressive language had difficulty in thinking even of names of close relatives and friends. One retarded child in Special Class D was completely anomic.

The problem of rating vocabulary was more general. Many pupils had specific difficulty with the concepts of medium, middle, least, and halfway between preparatory to their construction of a reference frame. A discussion of person differences in terms of height (some persons are very tall, very short, of medium size, etc.,) was frequently found to be remedial here (from point of view of the Syracuse Scales rating task), especially when accompanied by stick figure pictures of different sizes which could be pointed to. For those children who could initially recall names of other than their immediate classmates, the rebuilding of this shortest to tallest reference structure into a "medium," "most," "least," and "halfway-inbetween" referent person continuum as related to the need succorance situation generally presented only minor difficulties. Among these were distractability and an apparent need to have directions repeated. Most of the interviewed children indicated a strong preference not to name "non good" persons. Selection of a "least" succorant or helpful person for some of these children was effected only with explicit examiner assurance and support. In general, the children were quite willing and interested to nominate their more preferred persons.

Close pupil-examiner interaction served a further function in indicating and permitting correction of inconsistent or careless pupil selections and ratings. Acting upon the conversational descriptions voluntarily supplied by the pupil, the examiner in confronting the pupil with his inconsistencies generally brought about a logically more appropriate pupil response. Few pupils apparently able to manage the reference frame task had difficulty in rating peers.

Pupil feedback regarding their ability to discriminately deal with the different social need situations is relatively meager. The "PA" (probably adequate) entries in the last column of Table 4.1 essentially refer to the pupil's ability to supply pertinent situational examples in response to the interview description of the different social need situations. The "A," (adequate) entries indicate additional evidence of pupil social need differentiation in terms of his selecting different referent persons and in making different peer ratings for the different social need scales. The more common lack of such differences, however, does not indicate non inter scale differentiation; only that referent persons and/or ratees are perceived by the rater in the same position on both scales.[3]

In general, the interview data highlighted a number of problems relating to the testing of retarded children. Two criteria for testability seemed to emerge. Retardates below an educational achievement level of approximately 2.5 years generally performed unsatisfactorily on all requisite Syracuse Scales tasks. Lack of equivalence of the available achievement tests data for interviewee sample, permits some exception here. More clearly pertinent is the differentiation among those retardates able and unable to provide a substantial number of names of persons known to them. Pupils who block on this task, who fail except with prodding to name even their own siblings and/or classmates, are clearly untestable using the Syracuse Scales format. The dual criteria of educational achievement level and recall of more than immediate classmate names are recommended as a lower screening cut-off for group testability using the Syracuse Scales procedures. Individual administration to fringe level subjects should provide sufficient supporting data for final evaluation of the pupil's testability.

B. Eight-Category vs. Five-Category Scoring:

The initial development of the Syracuse Scales of Social Relations was designed for study of college students, persons acknowledged to be intellectually above average. An eight-category scale rather than one of fewer categories was selected to "capitalize on our respondents' discriminatory powers without too serious a compounding of discrimination errors" (Gardner and Thompson, 1956, p. 54). Subsequently obtained test-retest data both for the college groups and for high school and upper elementary school grade samples tended to support the choice of the eight-category scale.

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[3] Aside from the limited pertinence of inter scale correlational data (see Section V, D) the problem of inter need scale differentiation remains generally unresolved. A further test for inter scale differentiation could be provided by comparing the rater's referent frame selections in response to administration of a pair of polar social need situations.

In considering a younger, intellectually average and below average subject population, a reduction in the number of scale categories was proposed. This proposal involved retaining the five man reference frame used in the standardized Syracuse Scales format but deleting the final "better than" or "less good than" comparisons. Without these latter comparisons the eight-category scale, in effect, reduces to a five-category scale.[4] To examine the probable loss in discriminatory response in moving from the eight to the five-category scale, test booklets for two classes of sixth graders previously scored using the final "better than" and "less good than" comparisons were rescored. The test booklets were those for Classes 6A and 6B discussed earlier as part of a reference frame instruction study (see Section II, A, for testing procedures). The explicit reference frame instruction differed for these two classes; Class 6A received an "all persons known" reference frame instruction; Class 6B received an "all children known" reference frame instruction. In all other respects the scale administrations in the two classes adhered to the standardized instructions. These instructions require the pupil to "place the point of your pencil in the diamond" under the name of the referent person "most like" the classmate being rated. The rater then moves either to the left ("less good than") or to the right ("better than") of this diamond in making his rating. The rescoring consisted of assigning a sequence of integers, 0, 1, 2, 3, and 4, to each of the diamonds (or referent persons) from left to right. These simplified ratings were then recorded in a new class score matrix. Mean ratings made ($\overline{X}m$) and received ($\overline{X}r$) were computed for the abridged scale for all pupils in both classes for the two social need scales administered, social need scales succorance and achievement-recognition. Pearson product moment correlation coefficients were computed between means based on the eight-category and five-category score matrices for the ratings made and ratings received indices for both social need scales. In addition, correlations between individual ratings made (Xm) and received (Xr) by the first five pupils in both classes were computed. These mean and individual rating coefficients are reported in Tables 4.2 and 4.3, respectively.

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[4] Aside from reduction in number of scale categories, this deletion permits considerable simplification both of the format appearance and of the lengthy rater instruction.

Table 4.2

Correlations Between Mean Rating Indices Based on Regular (Eight-Category) and Abridged (Five-Category) Scoring of the Syracuse Scales of Social Relations, Elementary Form, Need Scales Succorance and Achievement-Recognition in Two Sixth Grade Classes

	Need succorance scale		Need ach-rec scale	
	$r_{\bar{X}m}$	$r_{\bar{X}r}$	$r_{\bar{X}m}$	$r_{\bar{X}r}$
Class 6A	.973	.993	.982	.996
Class 6B	.974	.994	.985	.996

Note: Each correlation is based on 26 pairs of mean ratings.

In both classes and for all four average rating indices, the correlation coefficients are extremely high, the eight r's ranging between .973 and .996. Very clearly the loss in precision for within-class inter rater comparisons in moving from the eight-category to the five-category scoring is negligible. The coefficients in Table 4.3 for the individual rating indices are nearly as high, the forty r's ranging between .914 and .992. Again this minimal loss in precision, this time with respect to within-class intra rater comparisons, strongly supports the proposed simplification of rater task.[5]

Table 4.3

Correlations Between Individual Rating Indices Based on Regular (Eight-Category) and Abridged (Five-Category) Scoring of the Syracuse Scales of Social Relations, Elementary Form, Need Scales Succorance and Achievement-Recognition for the First Five Pupils Tested in Two Sixth Grade Classes

Class 6A	Need succorance scale		Need ach-rec scale	
	$r_{\bar{X}m}$	$r_{\bar{X}r}$	$r_{\bar{X}m}$	$r_{\bar{X}r}$
Pupil 1	.943	.938	.955	.946
2	.987	.987	.980	.952
3	.978	.961	.988	.976
4	.920	.956	.954	.948
5	.983	.951	.936	.927
Class 6B				
1	.973	.983	.983	.990
2	.969	.969	.953	.981
3	.968	.954	.914	.961
4	.992	.949	.991	.942
5	.982	.971	.956	.975

Note: Each correlation is based on 25 pairs of individual ratings.

C. Second Grade Testing:

Though the general limitations imposed by pupil reading and writing difficulty below the third grade level initially suggested the third grade as a lowest age-grade group for this peer rating project, interest in the rating behaviors of younger children prompted the testing of a second grade class. An experimental, simplified four-category peer rating scale was prepared and administered to a class of 21 second graders.[6] This modification incorporated the major features of the Syracuse Scales; namely, the specificity of a social need situation, the conceptualization of a personal reference population, and the selection of referent persons for ratee comparisons. The concept of individual differences was introduced in terms of inter person variation in height and in weight. The second graders were encouraged to recall extreme persons for both of these physical dimensions. In the discussion, it was pointed out that there could only be one tallest or shortest person known to them but that their classmates might know different persons. The social need succorance situation was introduced essentially as worded in the published form:

> "Sometimes you get into trouble and you feel unhappy. It might be that you have been blamed for something you didn't do. Think about some time when you were very unhappy and would have liked to talk over your troubles with some kind, sympathetic person." (Gardner and Thompson, 1958.)

The generality of this situation was discussed. Dittoed rating sheets were then distributed containing a listing of pupils, a unimodal pictogram representation of their reference population, and three boxes to be identified with selected referent persons.

Each second grader was required to build a three person reference frame in terms of the given social need succorance situation consisting of a most, a least, and a medium preferred person selected from his population of all persons he had ever known. They were then to com-

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[5] The possible argument that the more exacting rater task, that is, the required added discrimination in indicating "better than" or "less good than," probably contributes to a general, more attentive rating response, and therefore to more "reliable" indices, is not supported in this study (see discussion of stability coefficients for standardized and modified scales administrations, Section V).

[6] Prepared and administered by Allen H. Kuntz, then school psychologist, Lancaster Public Schools, Lancaster, New York.

pare each classmate with their referent persons using a two-step comparison procedure. The procedure required the rater to first decide whether the classmate was "better" or "less good" than the middle person and then to decide whether the classmate was "more like" the middle person or the extreme person. These comparisons resulted in placing classmates into one of four possible scale positions; above least, below middle, above middle, and below most. With some examiner help,[7] all of the second graders appeared able to fill in their reference frame and to place all their classmates in one of the four scale positions. The administration took about 35 minutes of class time.

An examination of the distributions of the scale placements for the 420 individual ratings made (21 raters rating 20 classmates) revealed that 95 evaluations (23 per cent) were made using the above least position, 132 (31 per cent) using the below middle position, 90 (21 per cent) using the above middle position, and 103 (25 per cent) using the below most position. These distributions and the general pupil behaviors during the scale administration suggested a willingness of the second graders as a group discriminately to evaluate their peers. Closer inspection of the individual pupil usage of the four categories, however, revealed that one pupil used only two of the available categories in rating all of her classmates, that 6 of the 21 second graders used only three available rating categories, and that two additional pupils used a fourth category only once. The tendency to distribute their peer evaluations approximately evenly throughout the four category range was, in effect, descriptive of only about one-half of the second graders tested.

Inspection of the persons selected by second graders for their reference frame positions was further illuminating. Second graders were extreme in the frequency with which they used parents as referent persons. All but one pupil wrote either "mother" or "father" in the "most preferred" box; the exception was a boy assigning mother to the middle box below that of a favored male classmate. "Mother" was almost twice as popular as "father" for the "most preferred" box. Four of the 21 youngsters (two boys and two girls) wrote "father" as their least preferred (non-succorant) person. In all, 30 of the 63 referent persons selected by the second graders were adult relatives. No non-family adults were used in any referent position. Approximately half of the children named as referent persons were identifiable classmates. Confusion or change in evaluation during the scale administration in several of these instances was reflected by rater inconsistency in first using a classmate as a referent person and then rating him in a scale category incongruent with that initial evaluation.[8] Only 16 of the 63 referent names written were other than relatives or classmates. In general, these second grader selections of referent frame persons suggest a limited resource of recall persons and a probably less valid (in terms of inter pupil and, more particularly, in terms of inter grade comparisons) set of peer ratings.

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[7] Two immediate problems occupied most of the examiner's time. Nearly all pupils needed and asked for help in spelling their referent names and, almost as commonly, pupils had difficulty in visually moving across the page and staying on the same line as that for the ratee's name. Rulers were introduced in the latter instance and seemed to resolve this visual problem for all but one pupil whose ratings proved undecipherable.

Due to conflicting administrator and class schedules, the second grade children were not retested until the following school year. Aside from the excessive retest period of nine months, two problems mitigated against efficient retest data; the fact that the second graders were now dispersed in different third grade classes, and the introduction of further scale modifications. The major changes in scale procedures involved adoption of a five person reference frame, a five-category scale, and the more restricted "all children known" reference population. The two third grade classes enrolling most of the earlier tested second graders were tested using this modification.[9] One third grade class contained 11 of the original 21 second graders, the second class only six. The remaining four second graders had moved to third grades in other schools. One of the 11 third graders was absent the week of testing. Average rating indices based only on subgroups (N = 6 and N = 10) of second graders remaining together were computed for the 16 third graders making ratings and the 17 third graders receiving ratings. Test-retest correlations for both of these average rating indices, $\bar{X}_m$ and $\bar{X}_r$, were computed. Retest correlations were also computed for the individual ratings for each of the 16 second graders twice tested.

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[8] This within administration inconsistency was occasionally found at all grades later tested.

[9] These two third grade classes were subsequently retested to provide third grade stability data regarding this scale modification (see Section V, Classes 3E and 3F).

In general, the average peer ratings received by second graders from classmates with whom they remained the following school year proved to be uncorrelated with corresponding average ratings received by these same classmates nine months later. The correlation between the average ratings received for the 17 twice rated second graders was .01. The correlation between the two sets of average peer ratings made by the 16 second graders of each other was somewhat higher, $r = .46$. The contrast between these two coefficients suggests that the general tendency on the part of these second graders to rate peers either more or less leniently (giving them higher or lower ratings) had more stability over the nine month span than did the relative average way in which they were perceived by their classmates. Examination of the 130 ratings made in the spring and in the following winter (the subgroup of 6 second graders rating 5 others and the subgroup of 10 second graders rating 10 others) revealed exact or close agreement[10] in individual ratings made for nearly 39 per cent (51 out of a possible 130) of the rater-ratee pairs. Individual test-retest correlations (based on ratings of as few as five classmates) varied extensively from near unity to high negative. The median retest correlation for individual ratings received was .24; for individual ratings made, only .05. Aside from the moderate rater stability in terms of general leniency-non leniency noted above (r for $\bar{X}_m$ of .46), the prevalent picture is one of instability of the second grade pupil rating over the gross retest period. It is probable that greater stability would be obtained given identical retest administrations over a much briefer retest period. Further, mean rating indices based on larger rater-ratee matrices would be expected to be more stable. However, no evidence pertinent to these latter arguments based on second grade ratings is presently available.[11] The second grade testing was undertaken primarily to reveal younger pupil difficulties in responding to the task requirements of the

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[10] The initial test categories were scored 0, 1, 2, 3; the retest categories were scored 0, 1, 2, 3, 4. Agreements were defined by 0 first test and 0 second test, 1 first test and 1 or 2 second test, 2 first test and 2 or 3 second test, and 3 first test and 4 second test.

[11] A later attempt to obtain further second grade test-retest rating data failed due to an unexpected lack of within class inter pupil acquaintance. No further testing of second graders was possible under the limiting time schedule for this project.

Syracuse Scales rating procedures. The subsequent modification of these scales for third grade administrations incorporates several suggestions arising from the second grade testing.

D. Modification of the Syracuse Scales of Social Relations:

Aside from the initial simplification of the Syracuse Scales of Social Relations for experimental administration to a second grade class (as described in the previous subsection), a series of general changes in the directions and format of the Syracuse Scales were prepared in the late fall of 1961. These were subsequently developed into a present modification[12] which was twice administered to some 400 regular and retarded public school children. Against the broad backdrop of the very extensive standardized directions for administering the Syracuse Scales to classes covering a wide span of eight grade levels, these modifications may properly be regarded as peripheral. The four essential features of the original Syracuse Scales, the use of a specific social need situation, the conceptualization of a wide population of personally known others, the development of a rater frame of reference employing key persons from this population, and the comparison of peer group members with these key persons are all retained. The modifications developed in this project are considered crucial with respect to administration to young or retarded elementary school children. Modification of the existing scales for administration to junior high or high school pupils was regarded as clearly beyond the intended scope and direction of the project. Though it seems reasonable to the writer that the modifications developed under the current project would facilitate administrative ease and possibly enhance the integrity of ratings obtained from upper grade as well as elementary grade pupils, this possibility was not experimentally examined. No regular post-elementary classes were tested in this study. The procedural changes which cumulatively define the present scale modifications extend the standardized Syracuse Scales directions and format downward to a third grade rater level.

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[12] These modified directions and the scale format are presented in Appendices A and B.

Essentially, the present modification may be described as different from the standardized form in five[13] respects; language simplifications, warm-up recall period, an abridged five-category rating scale, altered procedures for selecting referent persons, and the use of a more restricted reference population.

Pupil comprehension level and general predilection for activity are problems for the test administrator faced with the need to introduce young children to a series of relatively abstract new ideas. This is especially true of the group test in which instructions are placed to include the slower than average pupil. The published directions for the Syracuse Scales of Social Relations administration are elaborate and long. Perhaps the most general complaint on the part of test users is the long to-be-read-verbatim sections in the administrator's manual. Approximately 1500 words are to be read to the class between the directions for writing one's name on the rating booklet and the instruction to list the names of one's classmates. At the rather rapid pace for comprehension of 100 words per minute, this requires some 15 minutes of auditory attention. Such a lengthy oral presentation clearly presents problems to the test administrator in a restless elementary classroom. Much of the detailed step-by-step example read by the administrator is anticipated by the average pupil. A count of different words used, excluding differences in tense or pluralization, revealed approximately 300 different words. Several of these words, such expressions as "among," "sympathetic," "alphabetical order," "proper boxes," and "least-liked," were not generally understood by third graders and older retardates tested in trial individual scales administrations.

Conceptually, the major concern in administering the Syracuse Scales to third graders and retarded children was appropriate rater construction of a personal reference frame. Repeatedly during preliminary testings, this task appeared as the most critical requisite for the Syracuse Scales rating. The purported comparability of either inter pupil or inter class ratings resides in the rater's selection of (and subsequent referral to) appropriate referent persons. In the present modification, a recall session, preliminary to the introduction of the reference frame directions, is introduced in order to involve the pupil with the concept of a population of persons known to him. The administrator (teacher) and pupil together build a listing of names of children known to the class. This procedure is designed to promote pupil recall and consideration of an extensive number of peers, friends, non adult neighbors, and acquaintances, children known to the pupil at any time in his life. The social need situation and the referent selection task, requiring construction of a reference frame of five children known to him are then introduced to the pupil. A brief two to three minute recall session is interspersed between the administration of each social need scale.

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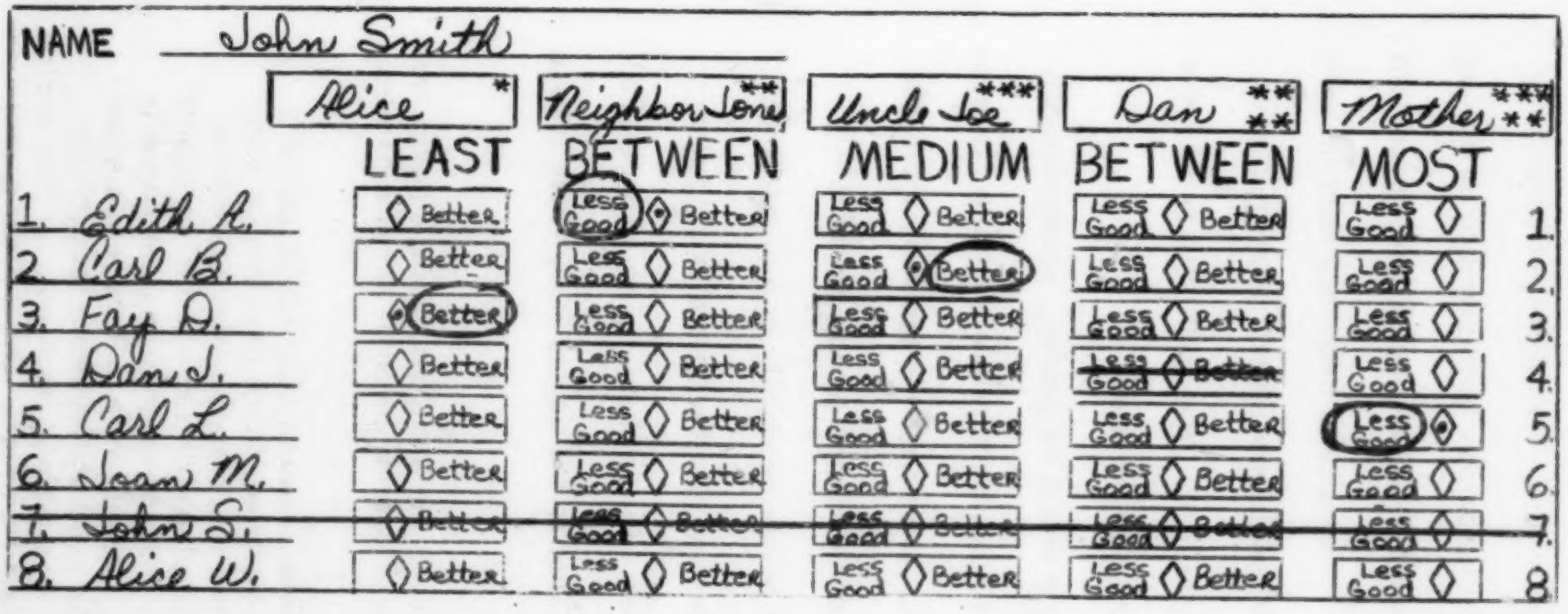
[13] A further change, the administration of the social need playmirth scale is viewed as a somewhat arbitrary addition of a further appropriate rating scale and shall be discussed in terms of inter scale correlational data presented in the following section.

The number of rating categories was reduced from eight in the standardized Syracuse Scales format to five in the present modification. This change was supported by the very high correlations between individual ratings and between average ratings using the eight- and the five-category rating scales (reported in Section IV, B). This reduction in rating categories permitted a deletion of the additional detailed and lengthened rating instructions for the further paired comparison (the placing of pencils on the diamonds and deciding whether the ratee was "a little better than" or "a little less good than" the referent name above the diamond) and led to a simplification of the rating format itself. The standardized rating page (8 1/2" x 11") contained 37 rows of five rectangles, each containing a diamond figure with the words "better" or "less good" defining the required final peer comparison. Younger pupils using early trial modifications had difficulty in sighting across the line to the right of the ratee's name to the appropriate rating box (see Section IV, C). The visual clarity of the modified rating page was considerably improved by deleting all entries within the rectangular boxes and by changing their proportions. A further concern in preparing the modified format for elementary children was rater loss of contact with the referent persons listed across the top of his rating page as his attention became directed to classmates' names lower down on the page. To facilitate reading ease and to visually remind the rater of his reference frame, the standard rating page containing the reference frame followed by 37 ratee rows, was reproduced as a multi-page booklet. Each page was of legal size paper (8 1/2" x 14") and contained only 12 ratee rows drawn across the long width of the page. The upper two inches of the first page(s) were cut out permitting immediate referral to the referent names boxes at the top of the last page of the rating booklet. The drawing of the upper sections of the standardized and modified rating pages in Figure 4.1 illustrate the reduced visual complexity of the modified form. Except for a reduction of the four and one-half inch wide column for classmates' names (printed on the left side of the legal sized modified rating page) to two and one-half inches, both rating pages are drawn full scale. The dotted lines indicate the cut-off top portion of the first page of the modified rating sheet. This keeps the reference frame boxes (printed on the final rating page) in view. The modified format also requires examiner printing of the ratee names on the rating pages. For young elementary pupils, some of whom are notoriously slow and deliberate in writing, this avoids a considerable delay and tedium in test administration.

A further modification of the Syracuse Scales administration involved the instructions for selection of referent persons. First, in view of the clearly non-normal distributions of preferential ratings of recalled persons (see Section III, D) all reference to normalized distributions were deleted. The standardized version calls for a sequence of selecting first a "most" person, then a "least" person, then a "medium" person, then a "halfway between medium and most" person, and finally, a "halfway between medium and least" person. This order is clearly appropriate to the bisectioning process, first specifying anchoring extremes, bisectioning this maximum continuum to identify the medium position, and then again bisectioning each remaining half continuum. Despite the logic of the instructions, analysis of actual referent persons selected strongly suggests that elementary pupils fail to appropriately select referent persons. Popularly, pupils tend to overselect their most preferred persons misidentifying these persons as "inbetween medium and most" referents and even as "medium" referents (see Section III, E). The resulting reference frame perforce deviates from the desired psychologically-equally spaced continuum.

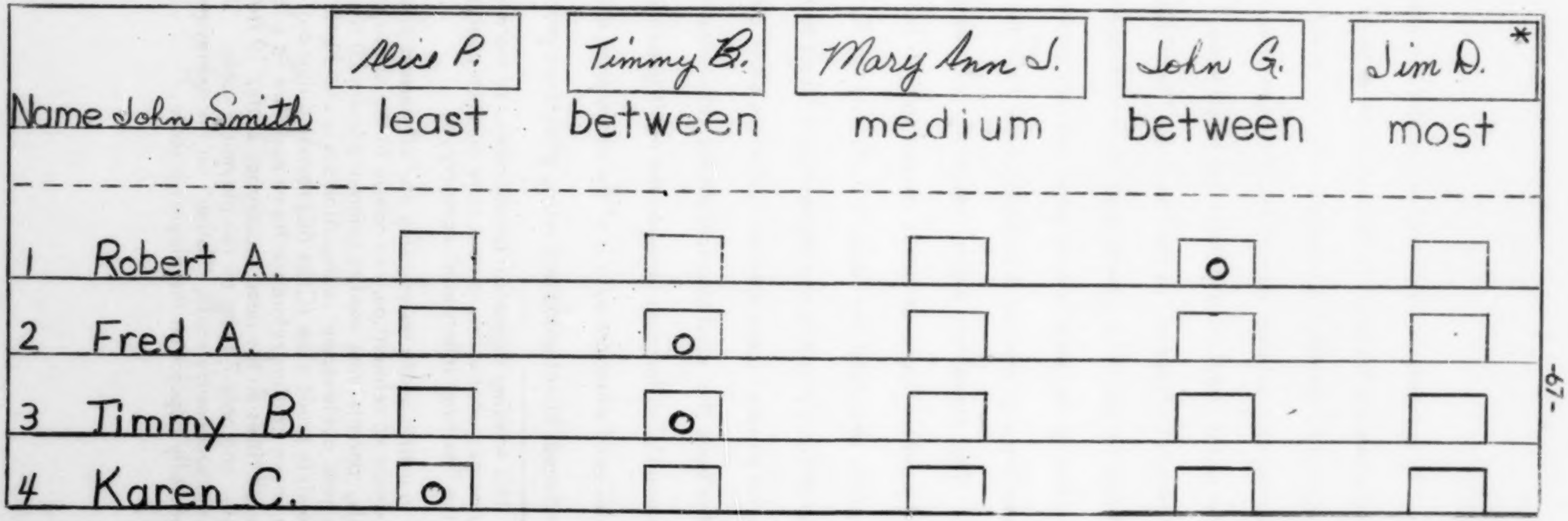
Standardized Rating Page



NAME John Smith

	Alice *	Neighbor Jones **	Uncle Joe ***	Dan ** **	Mother *** **	
	LEAST	BETWEEN	MEDIUM	BETWEEN	MOST	
1. Edith A.	◇ Better	[✓ Less Good] ◇ Better	Less Good ◇ Better	Less Good ◇ Better	Less Good ◇	1.
2. Carl B.	◇ Better	Less Good ◇ Better	Less Good ◇ [✓ Better]	Less Good ◇ Better	Less Good ◇	2.
3. Fay D.	◇ [✓ Better]	Less Good ◇ Better	Less Good ◇ Better	Less Good ◇ Better	Less Good ◇	3.
4. Dan J.	◇ Better	Less Good ◇ Better	Less Good ◇ Better	~~Less Good ◇ Better~~	Less Good ◇	4.
5. Carl L.	◇ Better	Less Good ◇ Better	Less Good ◇ Better	Less Good ◇ Better	[✓ Less Good] ◇	5.
6. Joan M.	◇ Better	Less Good ◇ Better	Less Good ◇ Better	Less Good ◇ Better	Less Good ◇	6.
~~7. John S.~~	~~◇ Better~~	~~Less Good ◇ Better~~	~~Less Good ◇ Better~~	~~Less Good ◇ Better~~	~~Less Good ◇~~	~~7.~~
8. Alice W.	◇ Better	Less Good ◇ Better	Less Good ◇ Better	Less Good ◇ Better	Less Good ◇	8

Modified Rating Page



	Alice P.	Timmy B.	Mary Ann J.	John G.	Jim D. *
Name John Smith	least	between	medium	between	most
1 Robert A.	☐	☐	☐	○	☐
2 Fred A.	☐	○	☐	☐	☐
3 Timmy B.	☐	○	☐	☐	☐
4 Karen C.	○	☐	☐	☐	☐

Figure 4.1

Full Scale[1] Drawings of Upper Sections of Rating Page for Standardized and Modified Syracuse Scales of Social Relations

[1] The name column on the modified page measures 4 1/2" instead of the 2 1/2" drawn here.

To compensate for this selection bias the modified instructions for selection of referent persons require the pupil to first select an average or mediumly preferred person. He is then instructed to identify his extremes, his most preferred person and his least preferred person. In selecting the halfway inbetween, the instruction is to select a person "who seems to be halfway between the 'medium' and 'most' (or least) name, " "someone better than the middle person" but not nearly as "special" as the "best" (or "least") person.[14] Though the frequency data in Table 4.4 (see below) offer some support for this change in bisectioning instruction, prior to a more specifically designed study of pupil referent person selections using these instructions, no clear supporting argument for this change other than the foregoing may be made.

That elementary pupils, especially the younger second and third graders, preponderantly used parental figures as anchor persons in their social need succorance reference frame has been severally described (see Section II, E, and IV, C, above). Aside from the probably increased rater difficulty in properly segmenting a "least to most" scale containing such psychically crucial persons, these parental inclusions place classmates psychometrically at a disadvantage in the sense that disciminations among classmates tend to be lost relative to the much grosser preferential differences between the adult (parent) and peer. This probably is not as true of all social need situations as it is of the succorance situation[15] but to the degree it is, these (above mentioned) bisectioning and rating effects are probable.

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[14] This wording suggests a person nearer to the middle than to the extremes. This is again, to counteract what seems to be a more common pupil practice of overinclusion of extreme persons in the "halfway inbetween" category.

[15] In a fifth grade tested using an "all persons known" reference frame (Class 5A), out of a maximum 46 referent persons named in the above medium reference frame positions on each scale, parents were used as referent persons 20 times on need succorance scale; 14 times on the need achievement recognition scale and 11 times on the playmirth scale. Similar counts in a sixth grade class (Class 6C) revealed that out of a maximum 64 referent persons names in the above medium reference frame positions on each scale, parents were used as referent persons 38 times on the need succorance scale, 19 times on the need achievement recognition scale, and only 7 times on the playmirth scale. "Mother" was a clear, most popular first choice on the succorance scale, "father" on the achievement recognition scale, and neither parent especially popular on the playmirth scale.

The use of a more restricted reference population logically should reduce these effects. A pertinent and seemingly appropriate restriction for elementary grade pupils is an exclusively "all children known" reference population. In the modified directions, pupils are first supported in an active recall of different children they have known. After about 10 minutes of volunteering names they are reminded that they know many more children. They are then instructed to select from "all of the children known to them" five referent names. Their reference frame can contain only the names of non-adult persons.

The effect of this restricted reference frame on the ratings which pupils subsequently make of their classmates may be examined by comparing the frequencies with which pupils used each of their available rating categories in classes tested on the scales modification employing the "all children known" reference population with those frequencies for classes tested using the "all persons known" reference population. The data reported in Table 4.4 provide such a comparison. All entries in this table are cumulated percentages based on counts of pupil use of his available rating categories and are summarized by class separately for each social need scale administered.[16] Class percentages reported to the right of the table describe pupil category usage given the modified "all children known" reference frame instruction. Percentages for all 14 of the classes involved in the test-retest administrations described in Section V, A, and for Class 6B described in Section II, C, are reported. The class percentages reported to the left of the table describe pupil category usage given the "all persons known" rating instruction. Unlike the "all children known" administrations, few classes were tested on three social need scales using the more extensive reference frame instruction. An eight-category scale was used for all of these classes (and for Class 6B just mentioned) excepting the two third grade classes and the special class. In recording the percentage of pupil use of available rating categories for the classes using an eight-category scale, categories dependent on the same referent person were combined.

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[16] The cumulated percentage for a given class defines the relative frequency with which pupils in that class made ratings in and below the category defined by the column heading. A pupil listing of his test and retest percentages for all pupils receiving a second test administration is provided in Appendix E.

Table 4.4

Cumulated Percentages for Scale Positions Used by Pupils in Evaluating Classmates on Three Social Needs Scales, Succorance, Achievement Recognition, and Playmirth, of the Regular and Modified Syracuse Scales of Social Relations Using an "All Persons Known" and an "All Children Known" Reference Population, Respectively

Need Scale Succorance											
"All Persons Known" reference frame						"All Children Known" reference frame					
Class	Scale Position					Class	Scale Position				
	Least	Bet.	Med.	Bet.	Most		Least	Bet.	Med.	Bet.	Most
6C	28	62	83	94	100	6B	17	46	73	90	100
6D	30	68	90	96	100	6C	27	54	76	90	100
6E	22	55	88	98	100	6F	30	57	80	91	100
6G	30	68	88	97	100						
6H	41	74	89	98	100						
5A	10	36	68	92	100	5A	10	30	58	78	100
5C	39	75	91	98	100	5B	20	43	63	81	100
5D	34	66	86	97	100						
						4A	16	33	53	75	100
						4B	20	43	71	87	100
3A	19	36	54	72	100	3C	18	37	61	79	100
3B	26	44	64	81	100	3D	18	38	61	80	100
						3E	22	38	59	71	100
						3F	34	55	75	85	100
						3G	24	52	70	87	100
SpA	25	47	70	88	100	SpC	20	47	68	86	100
						SpD	16	36	55	77	100
						SpE	17	36	66	80	100

(Table 4.4 continued)

Need Scale Achievement Recognition											
"All Persons Known" reference frame						"All Children Known" reference frame					
Class	Scale Position					Class	Scale Position				
	Least	Bet.	Med.	Bet.	Most		Least	Bet.	Med.	Bet.	Most
6C	26	58	80	92	100	6B	16	42	69	88	100
6D	28	58	82	95	100	6C	21	47	68	85	100
6E	35	68	89	97	100	6F	27	53	74	86	100
6G	29	67	82	92	100						
6H	32	66	84	94	100						
5A	11	41	72	90	100	5A	10	33	61	80	100
5C	34	72	88	96	100	5B	22	44	64	82	100
5D	26	60	82	93	100						
						4A	18	38	58	77	100
						4B	15	41	67	84	100
3A	24	40	62	79	100	3C	18	36	60	76	100
3B	29	48	68	82	100	3D	18	39	60	79	100
						3E	24	38	59	71	100
						3F	33	54	74	85	100
						3G	25	51	70	86	100
SpA	32	53	74	90	100	SpC	26	46	69	87	100
						SpD	17	44	69	86	100
						SpE	14	36	66	80	100
Need Scale Playmirth											
6C	22	54	76	87	100	6C	26	48	67	84	100
6I	20	50	75	91	100	6F	29	54	78	88	100
5A	13	44	69	86	100	5A	13	34	58	78	100
5E	21	54	79	93	100	5B	25	45	59	73	100
						4A	23	42	61	77	100
						4B	24	49	71	83	100
3A	24	39	55	72	100	3C	18	35	59	76	100
3B	27	45	64	81	100	3D	21	42	62	74	100
						3G	33	55	74	87	100
						SpC	20	40	57	76	100
						SpD	22	47	66	85	100
						SpE	19	44	63	85	100

Note: Percentages for Class 6C and 5A appearing in the left "all persons known" columns are based on retest administrations.

The 13 classes providing percentages for the "all persons known" columns represent a wide time span of testing. Classes 6D and 6E were tested as part of the recall study described in Section III. The percentage distributions for Classes 6G, 6H, 5C, and 5D are from 1957 standardization administrations.[17] Classes 6I and 5E were tested that same year as part of a separate rating study.[18] Classes 6C, 5A, 3A, 3B, and SpA are current to this project. Percentages for Classes 6C and 5A are based on second test administrations (the initial testing for these two classes employed the modified all children known reference frame instruction), part of the test-retest administration described in Section V. Frequencies for Classes 3A, 3B, and SpA are based on an initial scales modification employing a five-category scale with an "all persons known" reference frame instruction. Excepting these three latter classes, no below fifth grade Syracuse Scales data using an "all persons" reference frame is known.

Referring first to the Table 4.4 cumulated percentages reported for the upper two elementary grades, the sixth and fifth grade classes, a difference between pupil use of the scale categories is clearly evident. Pupils following the "all persons known" reference frame instructions use the upper two categories considerably less in rating their peers than do pupils using the "all children" reference frame instruction. This is especially true for the social need succorance scale where an average of only 15 per cent of peer ratings were made in the upper scale categories when using the larger reference population as compared to 30 per cent when using the more restricted reference population. The average percentage comparisons for the achievement recognition scale were 18 per cent for the "all persons known" reference frame instruction and 33 per cent for the "all children known" reference frame instruction. For the playmirth scale these average percentages were 25 per cent and 34 per cent for the larger and for the more restricted reference frame instructions, respectively. Matching or near matching of peers to the referent person selected as "most" was especially rare when using the "all persons known" reference frame, accounting for an average less than 4 per cent of the peer ratings made on the succorance scale, 6 per cent of those made on the achievement recognition scale, and 11 per cent of those made on the playmirth scale. Comparable percentages for the "all children known" reference frame are 14 per cent on the succorance scale, 16 per cent on the achievement recognition scale, and 19 per cent on the playmirth scale. In general the differences in rater usage of the upper scale categories resulting from these two different reference scale instructions tend to be balanced by a heavier usage of the middle scale categories under the "all persons known" reference frame instruction. An approximately similar scale usage is indicated for the two reference scale instructions with respect to usage of the lowest category (matching or near matching of peers to the referent person selected as "least").

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[17] Made available to the writer by E. F. Gardner.

[18] deJung and Gardner, 1962.

Aside from describing a difference in usage of upper rating category given the two reference frame instructions, the percentage data for the upper elementary classes reflect inter scale differences. In all classes, the percentage of higher ratings given peers is greatest for the social need playmirth scale, next highest for the achievement recognition scale and lowest for the succorance scale. Again, relatively little inter scale difference is apparent in the rater's usage of the lowest scale categories. The inter scale differences balance with a heavier usage of the middle scale categories on the need succorance scale.

These differences in class percentages of scale usage noted for the fifth and sixth grade pupils are not found in the lower elementary grades and in the special classes. A more generous use of the upper scale categories is noted for all scales. Nor are the differences between scales as distinct as for the older pupils. In usage of the lowest rating category, these younger and special classes are comparable to the fifth and sixth grade classes.

In summarizing Table 4.4 data, three general statements seem warranted: First, a greater usage of upper scale categories was noted in the fifth and sixth grade classes using the restricted "all children known" reference frame. Second, this difference was most pronounced for the social need succorance scale, less so for the achievement recognition scale, and least for the playmirth scale. This pattern of decreasing differences follows a pattern of increased usage of the upper scale categories in moving from the succorance scale, to the achievement recognition scale, to the playmirth scale. And third, differences between pupil usage of scale categories for the two given reference frame instructions were non evident in the younger grades and special classes. The greater rater generosity or leniency of the younger more naive rater[19] serves to reduce the importance of the specific reference population considerations for these classes.

E. Individual Administrations of the Syracuse Scales:

Aside from the 36 institutionalized mentally retarded and the special class day school pupils individually interviewed preliminary to developing the modified Syracuse Scales (see Section IV, A), three classes of regular third graders (Classes 3A, 3B, 3C) and three public school special classes (for retardates) received individual Syracuse Scales administrations. With the assistance of an additional "roving" proctor, the directions for the group administration of the modified Syracuse Scales proved satisfactory for all 191 third graders tested excepting five pupils whose test booklets proved unusable.[20] The individual testing of the third graders was designed to provide group-individual test comparisons and were therefore only once tested in an individual testing session. The retarded children were all twice tested in individual testing sessions. Especially for these latter children, the use of a relatively distraction free testing room was considered a necessity. About 30 minutes of testing time was required for each pupil for the administration of three social need scales.

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[19] A cautioning addendum regarding generalization here: This interpretation resides in the representativeness of the two third grade classes and the single special class tested using the "all persons known" reference frame instruction. The seemingly extreme euphoric attitudes of the first of these third grade classes has earlier been noted (Section III, E).

[20] The third graders appeared to satisfactorily follow directions in selecting referent persons and in rating their peers. The brief individual assistance of the available administrator or proctor resolved various pupil questions and misunderstandings as they occurred and without detracting from the general test administration. The five pupils turning in unusable rating booklets were all pupils of below grade achievement and would, in other than the present testing program, be referred for individual testing.

Several changes in the group administration procedures were introduced in the individual testing sessions. For the retardates especially, it was important to concentrate on a single idea or direction at a time. The test booklets were initially kept out of sight. The examiner used a pad and pencil to write down the pupil's recalled names and actively supported him in enlarging upon his first recalled names, suggesting such additional appropriate child peer groups as Sunday School class, Cub Scout troop, other school classes, etc. About 15 to 20 names were listed before stopping. Pupils unable or refusing to name this many others were not further tested.

The reference frame concept was introduced similarly to that described (see Section IV, B) for the second grade class. The examiner sketched five boxes on his pad, similar to those on the test booklet. The pupil was encouraged to select the tallest, shortest, a medium sized, and two inbetween boys or girls referring to his recall list but also to other children not previously recalled. The examiner wrote these names in the five boxes. Ages and approximate grade placements of these recall children were requested as a partial check against inappropriate selections or task misunderstandings. A few retardates seemed satisfied simply to nominate someone regardless of appropriateness with respect to the given criteria. Stick figures of varying height to illustrate the required reference frame positions were used to facilitate understanding of the selection criteria.

In presenting each social need situation the pupil was asked for personal examples as a check both of his understanding and of the applicability of the social situation for him. In presenting each rating sheet following the discussion of the social need situation, the list of classmates names was folded back so that only the reference boxes were visible. The concepts of "most," "least," "medium," and "halfway inbetween" were reviewed and the pupil directed to provide appropriate reference frame. An accompanying brief pupil description of his selected referent persons for the different reference positions was encouraged, again providing the examiner with cross checking data. After writing the five reference names for him, the examiner would ask the pupil if these names were still his choice. Not infrequently, given an opportunity to reconsider his selections, especially those for his first social need (succorance), the pupil would change his mind and reselect a different referent person.

To keep the retarded child attending to the two required reference conceptualizations, that of the given social need situation and that of the referent persons during his evaluation of classmates, the examiner repeated each time what it was the classmate was to be rated for, and the choices with whom he could be compared. The examiner, in many cases, made the actual mark for the pupil at the latter's dictation. This kept the pupil focused upon the task of evaluation rather than that of finding his place on the Syracuse form. Evidence of apparent pupil confusion or carelessness as in the case of matching a classmate also used in the reference frame with a different referent person, was called to the pupil's attention for his correction. Again the pupil's volunteered reasons for assigning a particular rating to a classmate served the examiner in monitoring his rating process.

When one set of ratings was completed, prior to the next social need situation the examiner initiated a further period of recall of children known. During this recall, the names of classmates on the next Syracuse booklet were concealed to encourage recall of names other than those of children in the child's own class at school.

In general, the individual administration was maintained quite similar to the group testing. The differences were primarily built-in examiner concerns for pupil distractability and inattentiveness and collectively added a somewhat systematized review of the pupil's reference frame selections and peer ratings for reducing arbitrary or logically inconsistent pupil response. Essentially, these individual test modifications developed out of repeated testing of different retarded children. Most retarded children with an educational achievement level of 2.5 years and higher appeared able to satisfactorily cope with the reference frame and matching tasks required by the Syracuse Scales procedures. Data describing the retest stability of these pupils' ratings, both of their individual ratings and of their average ratings, is included in the following section.

SECTION V

RELIABILITY, INDIVIDUAL VS. GROUP ADMINISTRATION, AND INTER SCALE CORRELATIONAL ANALYSES

A. Testing Program for the Modified Syracuse Scales of Social Relations:

The modified Syracuse Scales of Social Relations[1] were twice administered to approximately 400 pupils regularly enrolled in 16 public school classes, two sixth grade classes, two fifth, two fourth, seven third, and three special (retarded) classes. Class enrollments in the regular classes varied from 33 to 22; in the special classes from 15 to 7. Nine of the classes tested constituted the complete above second grade enrollment in a Southeastern Kansas elementary school. Two third grade classes were located in a western New York state community suburban to Buffalo, New York. The three remaining third grade classes and two special classes were located in school districts near Kansas City, Kansas.

To provide data relating to a comparison of group and individual test administrations, three third grade classes were selected for individual testing, one of these classes, 3B, receiving an individual test administration followed a week later by the group testing; the other two classes, 3A and 3C, first receiving the group test, followed, one week and five weeks later, respectively, by the individual test administrations. The pupils in the three special classes were individually tested in both administrations. All other tests were group administered in their regular homeroom. The tests were administered by trained psychologists who had been previously briefed regarding the general procedures and format of the scales modification. In most classes a different administrator monitored the retesting than did the initial class. In the third grades one or two proctors assisted the test administrator, moving about the room, answering individual requests for clarification and help, and checking that the pupil's reference frame was filled in and that no pupils were left unrated.[2] For one fourth grade class the retest interval was seven weeks, spanning a Christmas vacation. For one third grade class the interval was five weeks; for one special class the retest interval was two weeks. All other classes were retested a week following their first test administration.

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[1] These modifications are described in Section IV, D. Classes 3A and 3B were tested prior to the adoption of the restricted "all children" reference frame and utilized the "all persons known" reference frame. Except for this difference, other modifications of instructions and format were constant across the 16 classes. The modified scale directions and format used are presented in Appendices A and B.

One of the fifth grade classes and one of the sixth grade classes were randomly chosen to receive the modified scales administration followed by an administration using the regular (standardized) format and directions in the retest session one week later. The remaining classes, one sixth, one fifth, two fourth, five third, and three special classes all received identical retest administrations of the modified Syracuse Scales of Social Relations. Three social need scales, succorance, achievement-recognition, and playmirth were selected for administration in all 14 classes in both test sessions. Except for an administrator oversight in failing to distribute the third social need scale (need playmirth) in two third grades, all test and retest sessions were procedurally successful. Approximately 45 minutes of class time was required for administration of the three scales barring interruptions other than brief "stretch" periods of a couple minutes between need scale achievement-recognition and playmirth. Individual administrations for the testable younger and retarded children varied from 20 minutes to half an hour. The essential criteria for testability were ability to recall with administrator support (encouragement--not probing), an outside reference frame population of "children known," ability to establish a "most" to "least" frame of reference, and willingness to rate one's classmates. Five of the regular class third graders individually examined and four of the special class pupils failed to meet these two requirements. Table 5.1 provides a description of the classes used in the testing program for the modified Syracuse Scales of Social Relations in terms of sex distribution, class size, age at time of testing and recorded IQ. These 16 classes provide data relating to test-retest reliability, individual vs. group testing comparisons, inter scale correlation and standardized vs. modified scales comparisons. The latter comparisons involving one fifth and one sixth grade class (Classes 5A and 6C) are described in Section II, C, and will not be further discussed in the present section.

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[2] A few third graders will have reading or task comprehension problems. The function of the proctor in resolving minor confusions and in identifying pupils requiring individual administrations is considered essential at this grade level.

Table 5.1

Distributions of Sex, CA, and IQ for 16 Classes of Public School Pupils Tested on the Modified Syracuse Scales of Social Relations and Providing Test-Retest, Individual vs. Group Administration, and Inter Scale Correlational Data

Grade	Class	Sex			CA (mos.)			IQ[1]		
		Girls	Boys	Total	$\bar{X}$	σ	Range	$\bar{X}$	σ	Range
6	6C	20	12	32	138	1.9	136-141	102	13.7	80-128
6	6F	13	18	31	145	3.1	140-157	101	14.5	77-136
5	5A	11	16	27	133	6.1	123-148	101	11.2	73-117
5	5B	17	11	28	127	2.0	121-130	105	12.6	87-137
4	4A	16	17	33	119	3.0	113-127	109	15.2	80-145
4	4B	19	13	32	116	3.9	112-129	112	14.0	74-137
3	3A	12	12	24	100	4.7	96-118	112	10.2	91-133
3	3B	11	11	22	101	3.7	95-106	114	7.2	100-128
3	3C	13	14	27	111	4.9	103-127	102	17.2	66-137
3	3D	12	16	28	103	3.6	100-118	117	18.7	86-165
3	3E	16	17	33	103	5.1	96-118	108	13.0	88-136
3	3F	15	18	33	103	5.6	88-136	106	11.5	85-133
3	3G	8	16	24	103	5.0	95-118	112	9.8	96-134
Special	SpC	8	7	15	134	11.8	114-151	75	19.5	45-106
Special	SpD	7	6	13	166	9.2	151-179	66	9.5	49-85
Special	SpE	3	4	7	170	9.0	155-185	65	5.4	57-72

[1] IQ data for Classes 6C, 6F, 5A, 5B, 4A, 4B, 3C, and 3D are based on the Detroit Alpha Test of Mental Maturity; for Classes 3A, 3B, and 3G on the SRA Primary Mental Abilities Test; for Classes 3E and 3F, the Lorge-Thorndike Intelligence Tests; for Special Classes C, D, and E, the Wechsler Intelligence Scale for Children or the Stanford Binet, Form L.

B. Test-Retest Reliability:[3]

The individual ratings that a pupil made of his classmates on a given social need scale (Xm) were copied onto rows of an N x N matrix where N equaled the number of classmates rated. The correlation between entries in, say, row i (ratings made by pupil i) on his class's test and retest matrices for the same social need scale provides the stability coefficients for the individual ratings which pupil i makes of his classmates on the given social need scale; that is, the stability of a single rating made by a given pupil.

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[3] As discussed in Section II (p.5), the distinction between ratings made [either an individual rating made (Xm) or a mean of ratings made ($\bar{X}$m)] and ratings received [either an individual rating received (Xr) or the mean of ratings received ($\bar{X}$r)] is crucial to all discussion of Syracuse Scales data. In analyzing test-retest data this amounts respectively to a distinction between the stability of a given pupil's single rating of another, a given pupil's average rating of all others, a single rating received by a given pupil from another, and the average rating received by a given pupil from all others.

The correlation between entries in column i (ratings received by pupil i from his classmates) on his class's test and retest matrices for the same social need scale provides the stability coefficient for the individual ratings which pupil i receives from his classmates on the given social need scale; that is, the stability of a single rating received by a given pupil.

The average row entry for row i defines the mean rating made by pupil i of his classmates ($\bar{X}m$). The correlation between the test and retest $\bar{X}m$'s based on the same social need scale provides the stability coefficient for average ratings made for that given social need scale. The average column entry for column i defines the mean rating received by pupil i from his classmates ($\bar{X}_r$). The correlation between the test and retest $\bar{X}_r$'s based on the same social need scale provides the stability coefficient for the average rating received for that given social need scale.

In analysis of sociometric data it is common practice to use such stability coefficients as the foregoing for estimating reliability. Psychometrically, the reliability coefficient may be defined as a ratio of systematic variance to total test score variance. The definition of systematic variance depends upon the experimenter's selection of operations for collecting his test scores. The appropriateness of his selection resides in the equivalence of his operationally defined error components with those which he rationally wishes to so include in terms of his conceptualizations of that phenomena he desires to measure. For sociometric data the appropriateness of the test-retest coefficient is subject to serious question. Most damaging is the fact that while assumptions of stability of inter person appraisal over time are rationally unwarranted, the sociometric experimenter using the retest procedures relegates such possible instability to error category. The complaint here is not so much one of poor choice of the reliability index as lack of better choice. Alternative procedures for estimating reliability of sociometric data are rationally even more hazardous. The application of criteria of consistency to measures of somewhat transient phenomena is a mixed wedding.[4] To the degree that variability in inter person appraisal over a given retest period is rationally permissible and actually exists, the retest correlation coefficient reflects an underestimation of the desired "non error" portion of the test scores. Theoretically, the coefficient would be greater for a lesser time interval.[5]

An alternate consideration of reliability of sociometric data is that of the actual magnitude of change. The standard error of measurement (SE) describes the variableness predicted for a second repeated measure based on the standard deviation of the first set of measures and the reliability coefficient computed for those measures. A further measure of change is statement of that which did occur, the frequencies of the varying amounts of shift in ratings over the retest period. In the discussion of the reliability of the rating of the modified Syracuse Scales of Social Relations which follows, both correlational and magnitude data are reported for the 11 retest classes for both individual ratings (made and received) and for average ratings made and received.

In preparing the data descriptive of individual ratings, the ratings made and received for the first five pupils on each non-special class roster and for all special class pupils having complete test-retest data were selected. An occasional substitution of a pupil of opposite sex was made to insure representation of at least two girls and two boys in each five-pupil sample. Pearson product moment correlation coefficients were computed between the sets of individual ratings made by each of these selected pupils in their two test sessions and between the sets of individual ratings received by these same pupils on each of the three social need scales administered; need scales succorance, achievement recognition, and playmirth. A total of 400 correlation coefficients is presented in Tables 5.2 and 5.3 in terms of grade averages,[6] each average based on a distribution of all individual test-retest correlations computed for pupils at the given grade level. The average of the mean pupil ratings (test and retest) and of the standard deviations of individual ratings (test and retest) are reported for each grade. Standard errors of measurement computed using the average grade correlation coefficient and standard deviation (for the first testing) are also presented. Table 5.2 refers to stability data for individual ratings made; Table 5.3 for individual ratings received. For convenience in data referral, data summarizing three third grade class analyses (Classes 3A, 3B, and 3C) receiving an individual and group scales administration are reported in the final rows of each section of Tables 5.2 and 5.3. These average coefficients will be discussed in the following subsection, V, C.

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[4] Internal consistency models for reliability, for example, involve the generally unsolvable problem of either forming alternative "halves" of others both as ratees and as raters or, worse, assuming a sameness of all raters' perceptions of a given other. A possible "second order reliability," an index perhaps of the consistency with which the obtained measure relates to or predicts a second, operationally independent variable might serve as a more satisfying description of stability. For an extended discussion of reliability of sociometric measures see, Lindzey and Borgatta, 1954, p. 420-422.

[5] However, in practice this expectation occasionally fails of achievement; see Kuntz, 1958, Table 10.

Table 5.2

Average Test Retest Reliability Coefficients, Means, and Standard Errors of Measurement (SE) for Individual Ratings Made of Classmates on Two Administrations of the Modified Syracuse Scales of Social Relations, Social Scales, Succorance, Achievement-Recognition, and Playmirth

Grade	No. of classes	No. of pupils	Aver. no. of pupils rated[1]	$\bar{r}$	Average rating		Average σ of rating		SE[2]
					Test	Retest	Test	Retest	
				Need Succorance Scale					
6	1	5	30	.87	10.6	11.8	12.3	12.0	4.4
5	1	5	27	.75	19.7	16.3	9.7	9.7	4.8
4	2	10	32	.65	19.2	16.7	12.7	13.2	7.5
3	4	20	28	.50	19.1	19.0	13.3	13.2	9.4
Sp3	3	30	12	.49	19.8	20.4	12.4	12.1	8.8
3[3]	3	15	23	.60	22.6	21.6	14.8	13.7	9.3
				Need Achievement-Recognition Scale					
6	1	5	30	.82	12.7	16.3	11.9	12.0	5.0
5	1	5	27	.76	18.1	17.2	10.2	10.5	5.0
4	2	10	32	.65	18.5	15.7	12.5	13.3	7.4
3	4	20	28	.52	18.9	18.5	13.1	12.9	9.0
Sp3	3	30	12	.55	18.5	17.6	12.2	12.4	8.2
3[3]	3	15	23	.55	22.6	21.6	14.8	13.7	9.9
				Need Playmirth Scale					
6	1	5	30	.85	11.7	12.8	13.0	12.6	5.1
5	1	5	27	.82	18.8	16.8	11.9	10.0	5.0
4	2	10	32	.69	15.6	16.2	12.2	14.0	6.8
3	2	10	25	.48	18.0	18.6	13.8	13.2	9.9
Sp3	3	30	12	.48	19.1	18.2	12.6	12.1	9.1
3[3]	3	15	23	.61	20.7	21.0	13.9	13.4	8.6

[1] For grades 3, 4, and 5, indices were computed for the first five pupils on each class roster having complete test-retest data. Indices for the special classes were computed for all pupils.

[2] For the first administration.

[3] The summary data in this row refers to Classes 3A, 3B, and 3C receiving an individual and group scales administration and is discussed in the following subsection, V, C.

As may be seen from Table 5.2 the highest individual test-retest coefficients for individual ratings made are for the upper elementary grades, average r's of .87, .82, and .85 for the sixth grade pupils, and of .75, .76, and .82 for the fifth grade pupils on social need scales succorance, achievement-recognition, and playmirth, respectively. These coefficients compare quite favorably with those computed for earlier ratings obtained when using the standardized scales administration:[7] average r's of .66 and .67 for sixth grade pupils and of .72 and .78 for fifth grade pupils for social need scales succorance and achievement-recognition, respectively. The social need scale playmirth is administered only to senior high pupils in the standardized administration. Average r's of .87, .78, and .80 were computed for this scale for grades 10, 11, and 12, respectively. The average individual retest correlations for the fourth, third, and special class pupils tend to be about 20 correlational points lower than those for their upper elementary schoolmates; about 10 correlational points lower than those averages reported for the sixth and fifth grade pupils in the standardized administration data referred to above. Though average correlation coefficients may be regarded somewhat as "typical" they cover a wide range of differences in individual stability, including pupils who are very consistent in the way they twice rate their peers and pupils for whom their test and retest ratings are totally unrelated. An examination of the individual correlations, summarized as grade averages in Table 5.2, in fact, reveals that nearly a fourth of the correlations computed for the 60 below fifth grade pupils exceeded that of their average upper elementary schoolmates. About half of these higher correlations were for special class pupils. In general, the averages reported in Table 5.2 are informative only as summary description. Extensive within grade level pupil variability with respect to test-retest stability of individual ratings made was found at all grade levels for both the modified and the standardized administration data. In terms of test-retest stability, individual ratings obtained using the current modification are comparable with those obtained using the standardized procedures.

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[6] All average r's reported in this section are based on Fisher's r to z transformation.

[7] Made available to the writer by E. F. Gardner.

Due to a difference in scale categories between the standardized and modified scales, only an indirect comparison of the present Table 5.2 data with that of the standardization report is possible in terms of the standard errors of measurement reported in the last column[8] of Table 5.2. This coefficient permits a statement of the scale width within which the pupil's repeated rating of a given peer may be expected to fall. This scale width is dependent upon the test-retest reliability of the rating, the variability of the ratings, and the level of confidence desired by the investigator.

The standard errors in Table 5.2 were computed using the average grade test-retest correlation and the average standard deviation based on first administration data. These standard errors for the individual ratings made vary from nearly a fourth of the maximum rating range of 41 units to about a tenth of the range possible. The average standard error reported in Table 5.2 is 7.1; about one-sixth of the maximum range. The average standard error reported for the standardization data for the fifth and sixth grades is just less than 10 scale units; approximately one-eighth of the maximum range of 80 units on the standardized scale (Gardner and Thompson, 1959, Table 5).

The Table 5.3 average grade correlations tend to be slightly lower than those reported in Table 5.2 These average r's summarize the individual rating received stability coefficients reflecting the relative consistency with which a given pupil i. is twice rated by each of his classmates. To obtain a high individual rating received test-retest correlation each rater must tend to repeat his initial rating of the pupil i.; repeat, in the relative sense that raters who initially gave pupil i. his higher ratings received, again do so, and similarly, that raters who initially gave pupil i. his lower ratings, again do so. Considering these demands for consistency across all raters, except for the pupil rated, it is not surprising that test-retest correlations for individual ratings received are frequently lower than those for individual ratings made where the demand for consistency is made only of one rater per correlation.

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[8] A discussion of the stability of mean ratings made (middle columns of Table 5.2) is presented below in reference to the more extensive data in Table 5.5.

Table 5.3

Average Test Retest Reliability Coefficients, Means, Sigmas, and Standard Error of Measurement (SE) for Individual Ratings Received from Classmates on Two Administrations[1] of the Modified Syracuse Scales of Social Relations, Social Scales, Succorance, Achievement-Recognition, and Playmirth

Grade	No. of classes	No. of pupils	Aver. no. of pupils rated[1]	$\bar{r}$	Average Rating		Average σ of rating		SE[2]
					Test	Retest	Test	Retest	
				Need Succorance Scale					
6	1	5	26	.60	14.2	16.6	11.7	12.0	7.4
5	1	5	23	.71	15.8	16.0	13.0	13.7	7.0
4	2	10	26	.48	18.2	16.7	12.0	12.1	8.6
3	4	20	26	.41	18.6	16.7	12.9	13.3	9.9
Sp	3	35	10	.54	19.7	20.2	12.5	12.5	8.5
3[3]	3	15	20	.51	20.4	20.1	12.7	12.5	8.9
				Need Achievement-Recognition Scale					
6	1	5	26	.67	16.0	15.5	12.7	10.5	7.2
5	1	5	23	.79	14.9	13.9	12.1	13.6	5.6
4	2	10	26	.46	17.4	16.0	11.9	12.3	8.7
3	4	20	26	.49	18.6	13.6	12.6	13.4	8.9
Sp	3	35	10	.52	18.5	17.6	11.9	12.7	8.2
3[3]	3	15	20	.47	19.4	20.3	13.1	13.1	9.6
				Need Playmirth Scale					
6	1	5	26	.69	14.5	15.2	11.6	12.1	6.5
5	1	5	23	.78	16.1	15.1	14.8	13.7	7.0
4	2	10	26	.59	16.7	16.5	12.1	13.2	7.7
3	2	10	22	.41	17.0	17.0	12.6	12.8	9.7
Sp	3	35	10	.54	19.4	18.3	12.9	12.9	8.8
3[3]	3	15	20	.54	20.7	21.1	13.2	13.3	9.0

[1] For grades 3, 4, and 5, indices were computed for the first five pupils on each class roster having complete test-retest data. Indices for the special classes were computed for all pupils.

[2] For the first administration.

[3] The summary data in this row refers to Classes 3A, 3B, and 3C receiving an individual and group scales administration and is discussed in the following subsection, V, C.

The average grade correlation describing the test-retest of the individual ratings received are again about 20 correlational points higher for the upper elementary grade sample. Stability data for individual ratings received based on standardized scales administrations was not available. The average coefficients for the fourth, third, and special class pupils reported in Table 5.3 are quite similar. As was the case with the individual ratings made correlations, the averages reported in Table 5.3 summarize a wide range of coefficients; nearly one-third of the correlations computed for the 65 below fifth grade pupils exceeded that of their average upper elementary schoolmates.

Since standardized scales retest data is lacking for individual ratings received, comparison for the standard errors reported in the last column of Table 5.3[9] are, of course, not possible. For the modified scales these vary from about a fifth of the maximum range of 41 units to about an eighth of the range possible. The average standard error reported in Table 5.3 is 8.0.

The magnitude of change in individual ratings upon subsequent testing was examined by recording the frequency of the differences in individual ratings actually made by a sample of pupils in their test and retest administrations. In terms of the five-category rating scale used, not counting direction of change, four differences in individual ratings were possible: a change of one category unit, two units, three units, and four units. The sample of pupils used for these frequency tabulations were the same pupils used for the previously described individual rating test-retest correlations. These frequencies were converted to cumulative percentages and averaged for each grade. These data are reported in Table 5.4.

The cumulative frequencies in Table 5.4 describe the stability of individual ratings made in the five class groupings tested in terms of incidence of absolute shifts in ratings made over the test-retest interval. The first row of cumulative percentage entries indicate that 61 per cent of the sample of 150 sixth grade social need scale succorance ratings (made by five sixth grade pupils) were made identically the same in the test and retest sessions; that only five per cent of these 150 ratings changed to more than an adjacent rating category. The hierarchy of stability for this data is essentially the same as that for the earlier correlational data (based on the same pupils) indicating a greater stability of ratings for the upper grade pupils. No clear differences in stability for the different social need scales is evident. Pupils in the fourth, third, and

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[9] A discussion of the stability of mean ratings received (middle columns of Table 5.3) is presented below in reference to the more extensive data in Table 5.6.

Table 5.4

Cumulative Percentage Changes in Individuals' Ratings Made Upon Subsequent Administration of the Modified Syracuse Scales of Social Relations, Social Need Scales, Succorance, Achievement-Recognition, and Playmirth

Grade	No. of classes	No. of pupils	Aver. no. of pupils rated	Cumulative percentage changes in ratings made			
				No change	change <2	change <3	change <4
				Need Succorance Scale			
6	1	5	30	61	95	100	--
5	1	5	27	55	88	96	99
4	2	10	29	36	74	94	98
3	4	20	32	42	74	90	96
Sp	3	30	12	37	75	93	100
3[1]	3	15	23	44	74	94	99
				Need Achievement-Recognition Scale			
6	1	5	30	57	94	99	100
5	1	5	27	62	93	99	100
4	2	10	29	37	80	94	97
3	4	20	30	44	74	92	98
Sp	3	30	12	38	74	92	97
3[1]	3	15	23	44	77	91	98
				Need Playmirth Scale			
6	1	5	30	59	95	100	--
5	1	5	27	69	94	97	99
4	2	10	29	48	84	94	98
3	2	10	27	41	73	90	98
Sp	3	30	12	37	77	89	98
3[1]	3	15	23	45	75	92	95

[1] The summary data in this row refers to classes 3A, 3B, and 3C receiving an individual and group scales administration and is discussed in the following subsection, V, C.

special classes are generally similar in the extent to which they change their ratings of classmates in the retest administration, about 40 per cent of their ratings remaining identically the same, another 35 to 40 per cent changing one category unit. Gross changes of three- or even four-category units occurred occasionally at all grade levels (though only one change as large as three-category units occurred in the sixth grade sample) suggesting either rater carelessness or a substantial shift in peer evaluation. This latter is always a real possibility in inter person appraisal.[10]

The general picture of individual rating stability in the lower grades tested, an overall average of approximately 75 per cent of rating remaining within one scale category of the previous week's rating, is a favorable one. Gronlund, in reviewing stability studies of first and subsequent sociometric choices, notes a decreasing stability as choice level decreases (Gronlund, 1959, p. 132). The Syracuse Scales ratings encompass forced ratings at all choice levels. Though nominational and rating data are not directly comparable, the average stability of the Syracuse Scales rating of all group members seems at least equivalent to that for more traditional sociometric procedures eliciting only the pupil's first several choices.

Tables 5.5 and 5.6 present average grade test-retest reliability coefficients for mean ratings made and for mean ratings received, respecively.[11] The correlation coefficients reported in Table 5.5 describe the stability of the average of the ratings made by pupils over the retest period. These range from a high of .92 at the fifth grade level to a low of .58 at the third grade level. These extremes are not descriptive of grade differences, however. Stability coefficients for all grades tested overlap those of all other grades tested. For every grade the variability across classes within grades and across social need scales exceeds the differences between grades. That is, at least one of the three social need scale stability coefficients reported for any of the five grades tested, exceeds at least one of the three stability coefficients reported at every grade level tested. Essentially, there is no clear cut-off grade in terms of test-retest stability of mean ratings made. Though generally, as reliability indices, the coefficients reported in Table 5.5 are only moderately acceptable, they are comparable to the

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[10] Werner's (1948) discussion of emotional lability suggests that the more frequent occurrences of extreme changes for younger children reflect surface attitudes. Though young children both frequently express anger or dislike with respect to a peer, they will return to that peer for continued play relationships. Older children are both more guarded in expressing their person dislikes and more stubborn in maintaining them. Experimentally, however, it is difficult to separate the temporally deviate rating from the sustaining one, the "below surface" appraisal from the repetitive, but psychically, unimportant one. Operationally, the problem is one of defining error.

[11] The final rows of each section within Tables 5.5 and 5.6 summarize third grade data discussed in the following subsection V, C, Individual vs. Group Administrations.

sixth and fifth grade median reliability coefficients reported for the standardization sample: median sixth grade r's of .84 and .75 and fifth grade r's of .68 and .79 for social need scales succorance and achievement-recognition, respectively (Gardner and Thompson, 1959, Table 8).

Table 5.5

Average Test Retest Reliability Coefficients, Means, and Sigmas and Standard Errors of Measurement (SE) for Average Ratings Made of Classmates on Two Administrations of the Modified Syracuse Scales, Social Need Scales, Succorance, Achievement-Recognition, and Playmirth

Grade	No. of classes	Average class size	$\bar{r}$	M_1	M_2	σ_1	σ_2	SE[1]
			Need Succorance Scale					
6	1	27	.64	14.3	16.6	5.0	5.0	3.0
5	1	24	.79	19.2	18.0	8.0	8.9	3.7
4	2	27	.69	19.5	17.8	5.4	4.8	3.0
3	4	26	.58	19.1	17.2	5.0	5.2	3.2
Sp	3	10	.74	19.8	20.2	4.6	5.9	2.3
3[2]	3	21	.57	20.3	19.8	5.1	5.6	3.4
			Need Achievement-Recognition Scale					
6	1	27	.59	15.8	16.0	5.1	4.0	3.3
5	1	24	.92	18.6	17.4	7.7	8.2	2.2
4	2	27	.60	19.4	17.2	4.6	5.4	2.9
3	4	26	.58	18.8	17.8	5.0	5.2	3.2
Sp	3	10	.62	18.5	17.6	5.0	6.2	3.1
3[2]	3	21	.64	19.4	19.7	5.8	6.6	3.5
			Need Playmirth Scale					
6	1	27	.74	15.3	15.5	4.8	4.1	2.4
5	1	24	.91	19.5	18.2	8.6	8.6	2.6
4	2	27	.74	17.4	16.8	5.9	6.2	3.0
3	2	22	.66	17.4	17.2	4.9	6.0	2.8
Sp	3	10	.71	19.0	18.2	5.4	6.6	2.9
3[2]	3	21	.71	20.2	20.4	5.0	6.6	2.7

Note: Subscript 1 refers to first testing; subscript 2 to retest.

[1] For the first administration.

[2] The summary data in this row refers to Classes 3A, 3B, and 3C receiving an individual and group scales administration and is discussed in the following subsection, V, C.

A comparison across need scales suggests a slightly greater stability of pupil mean ratings made for the last administered social needs scale, playmirth. More clear is the greater stability of class means reported for this scale. In terms of class mean changes, the need succorance scale appears the least stable. These changes, however, do not follow any test-retest pattern. The generalized decrease in mean ratings upon subsequent testing noted for the standardized data (Gardner and Thompson, 1959, Table 5) and in more recent Syracuse Scales studies (deJung and Kuntz, 1962) is much less apparent for these data.

The standard errors for mean ratings made reported in the last column of Table 5.5 vary from an eleventh of the maximum rating range of 41 scale units to just less than a twentieth of the range possible. The average standard error reported in Table 5.5 is 2.9 scale units, about one-fourteenth of the maximum range. The average standard error based on sixth and fifth grade coefficient medians for the standardization data is just slightly more than a twentieth of the maximum standard scale range of 80 units.

The correlation coefficients reported in Table 5.6 describe the stability of the average ratings received by pupils over the retest period. Except for the relatively low r's computed for the special classes, these range from a high of .95 to a low of .85. These average r's for the sixth, fifth, fourth, and third grades compare favorably with the median reliability coefficients reported for the standardization sample: median sixth grade r's of .82 and .86; fifth grade r's of .84 and .92 for social need scales succorance and achievement-recognition, respectively (Gardner and Thompson, 1959, Table 9).

The considerably lower mean rating received r's for the special classes is somewhat puzzling. These average test-retest coefficients of .55, .65, and .63 for the three social need scales, succorance, achievement-recognition, and playmirth, respectively, are, in effect, generally lower than the corresponding mean ratings made stability coefficients reported in Table 5.5. For Syracuse Scales data stability coefficients for mean ratings received have consistently been found to exceed those for mean ratings made, generally by about .15 correlational points. The reverse has never been reported. Examination of the separate class correlations reveals that a singularly low stability coefficient of less than .40 is obtained for one of the three special classes, but not the same class each time. The fact that the classes are small, each mean rating received based on an average of ten peer ratings, suggests a possible explanation here in terms

Table 5.6

Average Test-Retest Reliability Coefficient, Means, Sigmas, and Standard Errors of Measurement (SE) for Average Ratings Received From Classmates on Two Administrations of the Modified Syracuse Scales, Social Needs Scales, Succorance, Achievement-Recognition, and Playmirth

Grade	No. of classes	Average class size	$\bar{r}$	M_1	M_2	σ_1	σ_2	SE[1]
			Need Succorance Scale					
6	1	31	.91	14.3	16.8	4.8	4.8	1.4
5	1	28	.95	19.2	17.7	5.0	5.3	1.1
4	2	32	.92	19.9	17.8	4.9	5.1	1.4
3	4	30	.86	19.2	17.4	6.0	5.8	2.2
Sp	3	10	.55	19.6	20.2	4.5	5.5	3.0
3[2]	3	15	.93	20.2	19.5	6.9	6.5	1.8
			Need Achievement-Recognition Scales					
6	1	31	.94	15.8	16.3	4.9	5.6	1.2
5	1	28	.95	18.7	17.5	6.4	5.8	1.4
4	2	32	.94	20.0	17.3	5.8	6.6	1.4
3	4	30	.85	18.9	17.0	5.9	5.7	2.3
Sp	3	10	.65	18.6	17.6	5.2	5.4	3.1
3[2]	3	15	.88	19.2	19.1	6.4	6.5	2.2
			Need Playmirth Scales					
6	1	31	.93	15.2	15.4	5.0	5.4	1.3
5	1	28	.93	19.6	18.3	5.3	5.8	1.4
4	2	32	.88	18.2	16.7	5.0	6.0	1.8
3	2	26	.90	17.6	17.5	5.1	5.1	1.6
Sp	3	10	.63	19.2	18.2	4.7	5.8	2.9
3[2]	3	15	.91	20.1	20.2	6.5	6.4	2.7

Note: Subscript 1 refers to first testing; subscript 2 to retest.

[1] For the first administration.

[2] The summary data in this row refers to Classes 3A, 3B, and 3C receiving an individual and group scales administration and is discussed in the following subsection, V, C.

of distortions effected by a few idiosyncratic pupils. However, unlike the mean rating made, distortions affecting the stability of the mean rating received must affect most raters.[12] A covert change or distortion would not suffice here; rather an overt change in the pupil's (ratee's) behavior affecting how all or most raters rate him. In the smaller special class, deviant or exceptional behaviors are perhaps most clearly noticed. Also in a small rating group fewer such ratees would be statistically required to produce variable mean ratings received. In the absence of pupil behavioral data, however, this post hoc description is purely conjectural.[13] In any event, the lower special class stability correlations for the mean rating received indicate a less than desirable stableness of this index over the relatively short test-retest interval of between one and two weeks. In view of this lower stability, a retesting of special class retarded children must be recommended as part of their regular test administration.

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[12] The mean rating received is, in effect, an expression of class consensus, an average of all ratings made of a given pupil. Ratee instability, that is, reversals in the ratee's behaviors promoting corresponding gross (and consensual) changes in the way he is rated by his peers, is requisite to obtaining low stability coefficients. A moderately high stability coefficient for mean ratings made suggests a stable average evaluation of classmates (as a group) by a given rater. The fact that each mean rating made is dependent on a single rater's stability in perceiving others occasions the generally only moderate stability coefficient for this index.

The standard errors for the mean ratings received reported in the last column[14] of Table 5.6 vary from just more than a fifteenth of the maximum rating range of 41 scale units to about a fortieth of the range possible. The average standard error reported in Table 5.6 is 1.8 scale units; less than one-twentieth of the maximum range. The average standard error based on the sixth and fifth grade coefficient medians for the standardized data is just slightly more than one-twentieth of the maximum standard scale range of 80 units (Gardner and Thompson, 1959, Table 9).

C. Individual vs. Group Administrations:

As described in Section V, A, above, three classes (Classes 3A, 3B, and 3C) were randomly selected from the seven third grade classes available for testing to provide data regarding the comparability of the individual and group administrations of the modified Syracuse Scales of Social

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[13] For instance, an alternative hypotheses could be advanced here in terms of relatively stable, intra person general use of the rating scale yielding moderately high test-retest mean ratings made, but, within this general use of the rating scale a casual assignment of classmates to the various rating categories, thereby yielding lower test-retest mean ratings received.

[14] The middle column class means in Table 5.6 have, in effect, already been reported in Table 5.5. Except for rounding errors and slightly varied quotients in computing individual means due to absent raters, the class means for ratings made and received are arithmetically identical. In further summarizing these class means by computing weighted average grade means, initially small differences between class mean ratings made and class mean ratings received are occasionally further accentuated as evident by a grade average difference of as large as 0.6.

Relations. The order of administration varied Class 3B receiving the individual administration first, followed by the group administration the next week; Classes 3A and 3C the reverse order. Classes 3A and 3B were tested using an earlier scales modification employing an "all persons known" reference frame; Class 3C using the final scales modification employing the "all children known" reference frame. This difference in reference population was essentially the only difference between the two scale modifications. Both employed the simplified rating format, the five-category rating scale and the "from the middle person outward" referent person selection, etc. The individual-group administration data was analyzed identically to that for the group-group administration; that is, Pearson product moment correlation coefficients were computed a) between sets of test-retest individual ratings made by each of the first five pupils having complete test-retest data within each class, b) between sets of test-retest individual ratings received by each of these same five pupils per class, c) between the test-retest mean ratings made by pupils within each class, and, d) between the test-retest mean ratings received by pupils within each class. The lack of differences between these two modifications at the third grade level has been noted earlier in terms of similarity of rater usage of scale categories (Table 4.4). Further, inter class comparisons of means, standard deviations and retest correlations support the comparability of data obtained using the different modifications. To facilitate comparison with the group-group, test-retest administration data, means, standard deviations, and correlation coefficients computed for these three classes were averaged and presented in a final row of each section of the various test-retest analyses tables.

Referring first to Tables 5.2 and 5.3 and the comparisons of the average correlations reported in the individual-group data row (last row in each need scale section) with those for grades three (and four), it is obvious the individual-group test-retest correlations for both the individual ratings made and for the individual ratings received are essentially comparable to those computed for the group-group test-retest data. This comparability maintains for all three social need scales. Referring to the stability data for mean indices, the mean rating made and the mean rating received, the same apparent, no differences, between coefficients based on individual-group and group-group administrations again maintains. The stability correlations reported for the individual-group data (last row in each need scale section of Tables 5.5 and 5.6), are clearly similar to those computed for the third (and fourth) grades entered above them. The comparison in terms of frequencies of rater change in his use of rating scale categories, Table 4.4, invites the same statement. Differences in frequencies of the various scale category changes between the individual-group administrations and the group-group administrations for any of the three social need scales administered are clearly negligible. The comparability of the ratings obtained in the individual and group administrations of the modified Syracuse Scales of Social Relations are supported in all five test-retest tables. Third graders' ratings obtained using either administration are essentially equivalent with respect to correlational and rating category choice stability in terms of either level of ratings (means) or variability of ratings (sigmas). In view of the generally acknowledged superior strengths of the individual testing situation permitting greater opportunity for establishing psychometrically profitable pupil-examiner rapport (gaining examinee support and controlling or reducing examinee error and misunderstanding), this equivalence of the individual and group administered testing procedure affirms the serviceableness of the modified group form of the Syracuse Scales of Social Relations.

D. Inter Scale Correlational Analyses:

The inter relationships of the three social need scales employed in the modified Syracuse Scales of Social Relations, scales succorance, achievement-recognition, and playmirth were analyzed using first administration scale data from all 16 classes involved in the test-retest administrations described in Table 5.1. The initial tests in one third grade class (3B) and in the three special classes were individually administered. In two third grade classes (3A, and 3B) the "all persons known" reference frame instruction was used. In view of the lack of inter class differences in third grade ratings made using the different reference frame instructions and the apparent equivalence of individual and group administration data (see Section V, C, above), no distinctions, other than grade level, were made within the 16 class sample. The inter scale analyses generally followed that of the test-retest analyses. Tables 5.7 and 5.8 present inter scale correlations and related data reported as grade averages for individual ratings made and for individual ratings received, respectively. Tables 5.9 and 5.10 present inter scale correlations and related data reported as grade averages for mean ratings made and for mean ratings received, respectively. The ratee sample for the individual rating analyses consisted of the first five pupils having complete inter scale data in each of eight classes[15] spanning the third through sixth grades and the special classes. Tables 5.9 and 5.10 involve the total 16 class sample.

Table 5.7

Average Inter Scale Correlations, Means and Sigmas for Individual Ratings Made of Classmates on the First Administration of the Modified Syracuse Scales of Social Relations, Social Need Scales, Succorance (Suc), Achievement-Recognition (AR), and Playmirth (Play)

Grade	No. of pupils	Aver. no. of pupils rated	Aver. inter scale correl.			Average rating			Average σ of ratings		
			Suc-AR	Suc-Play	AR-Play	Suc	AR	Play	Suc	AR	Play
6	5	31	.64	.64	.65	17.4	18.0	18.0	9.8	12.0	13.2
5	5	27	.73	.71	.82	19.0	18.4	18.6	9.8	10.4	11.8
4	5	32	.67	.74	.72	19.2	18.8	17.8	13.8	14.0	14.0
3	10	24	.69	.57	.67	23.9	22.7	22.5	13.9	13.2	13.6
Sp	15	12	.64	.62	.44	19.6	18.4	19.6	12.5	11.8	12.4

The 15 average inter scale correlations presented in Table 5.7 summarize some 150 individual ratings made inter scale correlations. The grade averages are more similar than their range of 38 correlational points (from a high of .82 to a low of .44) suggests. Excepting the two extreme coefficients and a further lower coefficient of .57, the 12 remaining average r's cluster within 12 correlational points of each other (from a high of .74 to a low of .62). The lack of inter grade differences is evident. Generally, it may be stated that the ratings obtained from the three social need scales are reasonably related, that a rater rating a pupil high on one social need scale tends to also rate that pupil high on the remaining two scales, and the reverse, a rater rating a pupil low on one social need scale also tends to rate that pupil low on the remaining two scales.

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[15] The classes were 6C, 5A, 4A, 3A, 3C, SpC, SpD, and SpE.

Closer inspection of the individual coefficients reveals a considerable inter rater variability at all grade levels in this regard, however, the occasional very high coefficients and the zero coefficients occurring equally often.[16] Comparison of the referent persons selected by the same rater for his different social need reference frames generally revealed pupil distinction among his three social need situations (see footnote 15, Section IV, D, above). These foregoing considerations together with the above table entries of moderate to moderately high average correlation coefficients suggest a qualified statement of "halo" effect (rater generalization across rating scales), that is, that commonly elementary pupils tend to rate their classmates somewhat similarly on the three social need scales, but that exception to this in terms of both extremely correlated and essentially uncorrelated ratings is occasionally found at all grade levels. Examination of the average rating columns and of the average sigma columns in Table 5.7 reveal neither higher ratings, lower ratings, greater rating variability, nor lesser rating variability as consistently descriptive (across grade levels) of any one social need scale. In terms of central tendency and in terms of scatter, the ratings made on the three scales for the five grade levels are undifferentiated.

Table 5.8

Average Inter Scale Correlations, Means, and Sigmas for Individual Ratings Received From Classmates on the First Administration of the Modified Syracuse Scales of Social Relations, Social Need Scales, Succorance (Suc), Achievement-Recognition (AR), and Playmirth (Play)

Grade	No. of pupils	Aver. no. of pupils rated	Aver. inter scale correl.			Average rating			Average σ of ratings		
			Suc-AR	Suc-Play	AR-Play	Suc	AR	Play	Suc	AR	Play
6	5	29	.68	.69	.59	15.4	20.0	20.4	10.8	11.6	13.4
5	5	26	.70	.75	.77	17.0	15.2	16.2	12.2	12.4	14.8
4	5	29	.61	.63	.76	22.2	19.8	22.2	12.4	12.0	13.2
3	10	22	.45	.49	.46	21.3	20.1	21.0	12.9	12.7	13.3
Sp	15	10	.56	.54	.51	20.0	19.2	18.5	12.7	11.1	12.1

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[16] The possible determinacy of lower inter scale correlations in terms of lower test-retest stability was explored by correlating the succorance-achievement recognition inter scale coefficients and the stability coefficients (for social need scale succorance) for the 30 below fifth grade pupils included in the inter scale analyses. The obtained r of .33 suggests only a minor interdependency of these two coefficients. The relationship of obtained stability and inter scale correlation coefficients is further discussed at the end of this section.

The average inter scale correlations presented in Table 5.8 summarizing the individual ratings received inter scale correlations are generally similar to those of Table 5.7 excepting the lower average coefficients reported for the third and special class pupils. The median average inter scale correlation for the 15 Table 5.8 correlational entries is 6.1. The fact of occasional gross inter rater variability at all grade levels also applies to individual ratee coefficients summarized in Table 5.8. Generally the ratings pupils receive from a given classmate tend to be similar from one scale to another. As was the case for the individual ratings made data in Table 5.7, examination of the average rating columns and of the average sigma columns for the individual ratings received data revealed no consistent pattern of inter scale differences.

Table 5.9

Average Inter Scale Correlations, Means, and Sigmas for Average Ratings Made of Classmates Obtained on the First Administration of the Modified Syracuse Scales of Social Relations, Social Need Scales, Succorance (Suc), Achievement-Recognition (AR), and Playmirth (Play)

Grade	No. of classes	Aver. no. of pupils rated	Inter scale correlations			Class average ratings			Average σ of mean ratings		
			Suc-AR	Suc-Play	Suc-Play	Suc	AR	Play	Suc	AR	Play
6	2	29	.68	.79	.72	15.0	16.9	16.4	5.6	5.5	5.2
5	2	26	.81	.82	.80	20.9	20.1	20.6	6.3	5.8	7.4
4	2	31	.74	.72	.80	19.9	20.0	18.3	5.6	5.2	6.6
3	7[1]	25	.65	.66	.63	19.6	19.0	19.1	5.0	5.2	5.0
Sp	3	11	.73	.62	.74	19.8	18.4	19.0	4.6	5.0	5.4

[1] Social need scale playmirth was not administered in two third grades. Third grade averages involving this scale are based on five instead of seven classes.

The average inter scale correlations presented in Table 5.9 reveal no consistent pattern of grade differences for the five grade levels tested. The median grade inter scale coefficients for the 15 Table 5.9 correlational entries is .73, a range of from .82 to .63. The mean ratings made reflects a general rater use of his scale in evaluating his classmates. These moderate to moderately high mean ratings made inter scale coefficients suggest that a pupil tending to rate his classmates high on one social need scale will tend to similarly rate them high on the remaining two scales, and the reverse, a pupil rating his classmates low on one social need scale will also tend to rate them low on the remaining two scales. The entries in the average rating columns in Table 5.9 are, in effect, a more complete summarization of the corresponding indices reported in Table 5.7, the Table 5.9 entries involving the full (approximately 400) pupil sample as opposed to the 40 pupil sample in the earlier table. The statement to be made here is the same as for Table 5.7; neither higher ratings nor lower ratings are found for any one social need scale. The averages of the class sigmas for the three social need scales similarly fail to vary with grade level and are neither consistently higher nor lower for any one scale. In general, no differentiation among the three scales for the five grades tested is evident in terms of either rater level of rating or in terms of the variability among raters in their level of rating within a class.

Table 5.10

Average Inter Scale Correlations, Means, and Sigmas for Average Ratings Received from Classmates Obtained on the First Administration of the Modified Syracuse Scales of Social Relations, Social Needs Scales, Succorance (Suc), Achievement-Recognition (AR), and Playmirth (Play)

Grade	No. of classes	Aver. no. of pupils rated	Inter scale correlations			Class average ratings			Average σ of mean ratings		
			Suc-AR	Suc-Play	AR-Play	Suc	AR	Play	Suc	AR	Play
6	2	32	.90	.89	.91	14.9	16.9	16.3	5.6	6.3	5.9
5	2	28	.92	.88	.88	20.9	20.1	20.6	5.5	6.0	5.3
4	2	32	.89	.85	.94	19.9	20.0	18.2	4.9	5.8	5.0
3	7[1]	27	.91	.84	.85	19.6	19.1	19.1	6.4	6.2	6.0
Sp	3	9	.51	.56	.42	19.6	18.6	19.2	4.5	5.2	4.8

[1] Social need scale playmirth was not administered in two third grades. Third grade averages involving this scale are based on five instead of seven classes.

The average inter scale correlations presented in Table 5.10 differentiates the special classes from the regular classes tested. For the latter, the inter need mean rating received correlations are generally quite high, a median grade inter scale r of .89, the 12 average r's ranging from .94 to .84. The largest of the three average inter scale correlations for the special classes is .56, the lowest .42. In terms of average ratings and in terms of average sigmas, however, this regular class-special class difference is lost. The variability in the Table 5.10 average ratings and average sigmas for mean ratings received from classmates is unrelated to grade level.[17] With respect to inter scale comparisons, a slightly larger sigma for social need scale achievement-recognition is obtained at all but one grade level suggesting that pupils are more differentiated with respect to the average rating they received from their classmates on this scale than on the succorance and playmirth scales. Excepting this latter scale difference,[18] in general, scale differences fail to obtain for the mean rating received data as for the previous mean ratings made, the individual rating received and the individual rating made data. In view of this interrelatedness of peer ratings based on the three social need scales used, development of further scales for inclusion into a larger rating battery appeared unprofitable.[19]

A general comment is appropriate here with respect to the relationship of the reliability coefficient described in Section V, B, and the present inter scale coefficients. In many instances the inter scale correlations presented in Tables 5.7, 5.8, 5.9, and 5.10 approximate the stability correlations presented in Tables 5.2, 5.3, 5.5, and 5.6. Though about twice as many raters and ratees were involved in the test-retest analyses of individual ratings made and of individual ratings received as were in the later inter scale analyses for these indices, a considerable overlap of the same "first five pupils" occurs, enough overlap to permit a general comparison of same pupils' test-retest correlations with those of their initial test, across social need scale correlations. Similarly, the 11 classes involved in the stability analyses of mean ratings made and of mean ratings received are all included in the 16 class sample involved in the inter scale analyses permitting general comparisons of the test-retest correlations with those of the inter scale correlations for the same classes. Psychometrically, the reliability coefficient for a given test score sets an upper limit above which no inter test correlation coefficient may obtain. To the degree that an inter test correlation (r_{AB}) approaches the geometric mean of the reliability coefficient for the two tests ($\sqrt{r_{AA} r_{BB}}$), the non-error variances for the two tests may be said to be common to both tests, that is, differences in scores on the two tests are to be considered "errors of measurement."

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[17] The interscale comparisons of the average rating entries have, in effect, already been made since, excepting rounding errors and minor differences in quotients, the class averages for ratings received (Table 5.10) are arithmetically equal to those for ratings made (Table 5.9).

[18] The chance probability of entries for one of three scales being the largest four or more times out of five comparisons is .045. However, considering the four (independent) sets of such entries (Tables 5.7, 5.8, 5.9, and 5.10) the probability of one or more such occurrence is .169.

[19] This limitation further permits complete (three scales) testing within the usual class period of about 50 minutes. Beyond this testing period pupil fatigue and ennui would pose further testing problems.

A different interpretation, however, is both required (some inter scale r's are larger than their parent single scale reliability coefficients) and reasonable. Essentially, what is involved in the present data is a difference between retesting with the same rating scale about a week later and retesting with a different rating scale the same class period. Actually, a reverse argument may be made in terms of the inter scale and stability coefficients, namely, that the inter scale correlations set a lower limit as to the "reliability" of the ratings of either scale.[20] This is tantamount to removing all variability due to temporal changes in ratee test behavior, other than those within the testing period, from error category. Considering the opposite extreme that test-retest reliability coefficients relegate all change in peer appraisal over the retest period to error category, a most appropriate "reliability" estimate (in the sense of ratio of "true" score variance to total score variance) probably lies somewhere between. Generally, the grade entries in the inter scale tables follow the same hierarchy of correlational magnitudes as the grade entries for the test-retest tables. That is, raters exhibiting greater test-retest stability with respect to their ratings on a single scale also tend to rate classmates more similarly (across scales) given different rating scales. Stated in the reverse, the interpretation is that raters tending to rate classmates similarly on the three rating scales will be more likely to again rate these classmates similarly in a retest session than will raters who tend to rate classmates differently on three rating scales. The difference between these two statements is not resolvable within the present study.

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[20] The insistence here is that a score on a repetitive task is more nearly identical to the initial task score than is that for any less similar second task.

A further statement is pertinent here with respect to interpretation of the particularly high inter scale correlations in Table 5.10 for mean ratings received. Excepting the special class correlations (based on an average of only nine ratings received) these r's are generally about 20 correlational points higher than are those in the other three tables for individual ratings made, individual ratings received, and mean ratings made. A recent report by Meyer and deJung (in press) found similar results for a sample of 387 pupils in grades five through twelve using two social need scales, succorance and playmirth. As discussed in their report, the mean rating received index is analogous to the commonly employed sociometric choice index, number of nominations received. The high across criteria comparability (generality of sociometric choice) has been quite widely reported (Gronlund, 1959; Lindzey and Borgatta, 1954). The possible differences in rater-ratee appraisal using the three social need scales, lost in computing the mean rating received, are maintained, of course, in examining individual ratings, made or received, but are also somewhat maintained in computing the mean rating made. The consensus or mean for the rating made is a sum or average for one rater at a time. The fact that some raters differentiate more or less in their use of a pair of rating scales is reflected in the mean rating made inter scale correlations. The fact that, as a group, raters tend to evaluate ratees similarly on the various pairs of rating scales loses the individual rater differences in use of rating scales. In summarizing the inter scale analyses, distinctions between the different rating indices need to be considered. Beyond these distinctions, a general interrelationship of ratings made and received on the three different social need scales has been evident in the data presented in this section with extremes in individual inter scale correlations, both very high and near zero, occasionally obtained at all grade levels.

SECTION VI

INTELLIGENCE TEST SCORES, ACADEMIC ACHIEVEMENT, AND PEER RATINGS MADE AND RECEIVED ON THE MODIFIED SYRACUSE SCALES

The data reported in the preceding section permit some cursory examinations of the relationships between the pupil's rating on the modified Syracuse Scales of Social Relations and his intelligence test scores and academic achievement scores. For most pupils included in the 16 class modified Syracuse Scales administration sample, both test scores were available as part of the pupil's school record. The intelligence tests generally had been administered within two years of the modified scales testing and, excepting the special class administrations, were all group tests. With the exception of Special Class C children, all special class pupils had been individually tested within one year of their scales testing using either the WISC or the Stanford Binet, Form L intelligence test. Class C special class children were tested by a project staff psychologist immediately after their scales administrations. In most classes the group achievement battery was administered in the late spring (May or June) following the scales administration. The various different group intelligence tests and achievement batteries used in the classes studied are identified in Appendix C roster which lists the CA, IQ, and achievement test scores for each pupil tested. To examine the relationships of intelligence and achievement test scores with the Syracuse Scales ratings, Pearson product moment correlation coefficients were computed for each of 16 test-retest data classes (see Table 6.1) between these scores and mean ratings made and mean ratings received on the initial administration of the social need succorance scale. These coefficients, averaged by class (using Fisher's r to z transformation), are presented in Table 6.1.

The first column of average correlations reported in Table 6.1 describe relationships between pupil intelligence test score and the average rating he makes of his classmates on the Syracuse Scales social need succorance scale. The coefficients are all negative and generally low or near zero indicating a minor relationship between IQ and mean ratings made; That is, a

Table 6.1

Average Within Class Correlations for Average Ratings Made by Classmates ($\bar{X}m$) and Received from Classmates ($\bar{X}r$) on the Modified Syracuse Scales of Social Relations, Social Need Succorance Scale, with Rater IQ and Academic Achievement Test Scores (Ach)

Grade	No. of classes	Aver. no. of pupils per class	Average Correlations			
			$\bar{X}m$ & IQ	$\bar{X}m$ & Ach	$\bar{X}r$ & IQ	$\bar{X}r$ & Ach
6	2	29	-.32	-.24	.58	.55
5	2	25	-.25	-.05	.57	.55
4	2	30	-.10	-.30	.31	.60
3	7	26	-.21	-.17	.32	.58
Sp	3	10	-.09	-.50	.06	.05

slight tendency for lower IQ pupils to rate classmates higher than do higher IQ pupils, and the reverse, a slight tendency for higher IQ pupils to rate classmates lower than do lower IQ pupils. Excepting the pronounced increase in the special class average of 41 correlational points to a -.50, these generally low negative coefficients tend to be repeated with respect to the relationship between achievement test scores and mean ratings received indicating a slight tendency for the academically poorer pupil to rate his classmate higher than does the academically superior pupil and vice versa.

The higher negative r for the special class pupils is based on separate class r's of -.43, -.70, and -.64. The variability in achievement test scores for these children is approximately the same as that for the regular classes tested. Apparently, within the retarded group lower achieving pupils tended to rate their classmates higher than did higher achieving pupils, and the reverse, higher achieving pupils tended to rate their classmates lower than did lower achieving pupils. One "explanatory" conjecture here is an accentuated generalized higher regard for academically superior peers and a generalized lower regard for academically inferior peers on the part of the special class pupil in classes where the range of academic achievement occasionally dips to the first grade level.[1]

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[1] In this regard, the above median referent persons selected by the relatively superior special class rater would be expected to include more regular class peers than would be the case for the referent person selections made by relatively poor special class pupil. The recorded referent person identification was not sufficiently complete to check this possibility.

The average correlations reported between the intelligence and achievement test scores and mean ratings received follow a pattern indicating moderate positive relationships. The exceptions here are the near zero coefficients for the special classes. Apparently in the regular classes tested, pupils identify classmates in terms related to intelligence and achievement test scores and extend this identification in rating them, that is, higher scoring pupils receive relatively higher Syracuse Scales ratings and lower scoring pupils receive relatively lower Syracuse Scales ratings made within the class. That this relationship extends beyond the specific social need scale employed is suggested by a recent rating study involving four classes of sixth graders reporting similar correlations for ratings using the social need achievement recognition scale, r's of .32 and .48 between mean ratings received on that scale and the Lorge Thorndike Verbal IQ and the SAT Grade Equivalent Score, respectively (deJung and Kuntz, 1962).

A further extension of these correlational data for mean ratings received may be made in reference to reported sociometric nominational data. As discussed earlier in Section II, A, the forced rating procedures of the Syracuse Scales of Social Relations introduce a considerable expansion of meaningful inter person preference data beyond that of the "number of nominations received" peer preference index generally derived from traditional sociometric procedures. In effect, the Syracuse Scales provide both indices of group evaluation (acceptance) of the group member in terms of individual and mean rating *received* indices, and indices of the member's evaluation of his group in terms of individual and mean rating *made* indices. These latter have no counterpart in usual sociometric indices except possibly the infrequently resorted to counting of the number of others chosen by a nominator in an unlimited nominational situation.

The mean rating received index, on the other hand, is somewhat analagous to the social acceptance score frequently reported for sociometric data. Using nominational indices Johnson (1950), Miller (1956), Baldwin (1958), Jordan (1959), and others, have independently reported that the mentally retarded child enrolled in the regular elementary grade receives lower social acceptance scores than do his academically brighter classmates; that is, he receives fewer positive and more negative nominations. The moderate correlations obtained for the third, fourth, fifth, and sixth grade classes between the mean rating received and the intelligence and achievement test scores are in accord with this general finding. The lack of this relationship in the special classes poses an interesting difference here. The fact that moderately high correlations were obtained between these variables and mean ratings made (see previous page), forces the conclusion (at least with respect to the three classes tested) that lower achievement level special class pupils tend to rate all classmates higher than do higher achievement level special class pupils, independent of the classmate's (ratee's) achievement level.[2]

Examination of across class comparisons; that is, comparisons of mean ratings received by the, say, 85 and below IQ pupils in the regular classes with those in the special classes using the present data, is meaningful only to the limited extent of describing existing differences in special and non-special class pupils, not as argument for the superiority or lack of superiority of special class placement, per se, for the retarded child.[3] The IQ rosters for the 16 classes receiving the modified Syracuse Scales administration (as described in Table 5.1) revealed 20 regular class pupils and 27 special class pupils having IQ's of 85 or below and having complete test data for all three social need scales. The mean ratings made and received for these 20 regular class and 27 special class pupils are reported in Table 6.2. All mean ratings are based on the first scales administration.

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[2] A contributing factor here would be the relatively less satisfactory test-retest stability coeffients for the mean rating received obtained for these classes (Section V, B).

[3] Goldstein, et al, (1962) has severely pointed this out in his discussion of studies of placement vs. non-placement of mentally retarded educable children. He concludes that these studies are inconclusive (and possibly misleading) without some assurance of equal likelihood of the retarded child's assignment. The fact that one retarded child has been placed in the special class and the second retarded child has not been may well be a difference sufficiently large and related to the experimental variable, in this case social acceptance, to confound interpretations.

Goldstein offers a further major criticism in terms of lack of control of the curriculum and of the teacher's competence; the fact that "placing an educable mentally retarded child in a special class is an administrative procedure only" (p. 7). His criticisms extend to the lack of control of prior school experiences. In effect, Goldstein's complaints are met only in the evaluation of an "ideal" program for the mentally retarded child randomly placed or not placed in the special class at kindergarten age. He comments, "If the ideal program does produce positive results, generalization would be limited to classes approaching the ideal as defined in the study" (p. 9). However, apart from the unarguable merit of Goldstein's "randomly placed" comparison, the investigators feel a need to describe, albeit with circumspect generalization, existing differences or lack of differences between special class and non-special class placed retarded school children.

Referring now to Table 6.2, from a comparison of the data entries in the second and last columns, it is immediately apparent that the lower IQ pupils received considerably lower ratings on all three social need scales than did their IQ peers in the special classes. These differences are all significant at the .01 level.[4] This is in accord with findings for the regular class-special class sociometric nominational comparisons reported by Blatt (1958), Cassidy and Stanton (1959), and Jordan (1959), and more recently by Johnson using a Syracuse Scales rating procedure (1961). In terms of mean ratings made of their classmates, the average ratings for both groups fell at about the middle of the rating scale. The lack of differences between the mean ratings made by the two groups suggests that either group of pupils finds their classmates similarly attractive, relative to their personal reference frame of all children known to them, in terms of the given social need situation.

Table 6.2

Mean Ratings Made ($\bar{X}$m) and Mean Ratings Received ($\bar{X}$r) by Regular Class (Grades 3 - 6) and Special Class Pupils with IQ's 85 and Below on the Modified Syracuse Scales of Social Relations, Social Need Scales, Succorance, Achievement-Recognition, and Playmirth

	Regular Class (N=20)		Special Class (N=27)	
	$\bar{X}$m	$\bar{X}$r	$\bar{X}$m	$\bar{X}$r
Need Scale Succorance	20.3	12.7	20.1	20.2
Need Scale Achievement-Recognition	21.0	12.8	18.5	18.7
Need Scale Playmirth	20.7	12.8	19.0	19.0

Note: The reasonably equal mean ratings made ($\bar{X}$m) and received ($\bar{X}$r) for the Special Classes are mathematically assured since most of the special class rating data is represented here.

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[4] Very similar Syracuse Scales rating differences were found for an early study of sixth, ninth, and twelfth graders (Abel, 1958).

An interesting difference is the discrepancy between the ratings the low IQ pupils in the regular classes make of their classmates and the ratings they receive. (For the special class pupils where data for all but a few pupils having IQ's above 85 are included, the near equivalences of mean ratings made and received are mathematically assured since both the mean ratings made and the mean ratings received are computed from the same class rating matrices, see Section V, B). Gardner and Thompson refer to such discrepancies between ratings made and ratings received (in which the rater makes higher ratings of others than others make of him) in terms of a "personal frustration" index.

> The psychological rational underlying this index is that a situation of 'personal frustration' exists for an individual to the degree that his evaluations of his group companions are more favorable than their evaluations of him for the potential satisfaction of a common social need . . . . individual A will tend to be 'frustrated' when he seeks the companionship of a personally highly valued group member Y and finds that Y rejects his social overtures in favor of social interaction with some other group member (Gardner and Thompson, 1956, p. 101).

These and other discrepancy indices are readily computable from the Syracuse Scales ratings and suggest numerous possible additional pupil-pupil and pupil-group descriptions. However, excepting Gardner and Thompson's initial presentation and two exploratory studies of the relationship of ratings made and expected ratings (deJung and Gardner, 1962; deJung and Meyer, 1963), to the writer's knowledge no further study of discrepancy measures based on the Syracuse Scales ratings have been reported.

SECTION VII

SUMMARY OF RESEARCH RELATING TO THE MODIFICATIONS OF THE SYRACUSE SCALES OF SOCIAL RELATIONS

A. Summary:

The data presented in the foregoing five sections of this report afford a general description of the peer rating behaviors of the elementary school child in terms of the proposed modification of the Syracuse Scales of Social Relations. The pupil's use of his reference frame instruction was examined by comparing peer ratings obtained in four regular upper elementary school classes using a "no reference frame" instruction and using two different implicit reference frame instructions (Section II). Examination of these ratings revealed a clear hierarchy of highest ratings made using the no reference frame instruction, lower ratings made using the explicit "all children known" reference frame instruction, and lowest ratings made using the explicit "all persons known" reference frame instruction. The "all children known" instruction resulted in a generally rectangular distribution of ratings as compared to the extreme skewness of ratings obtained when using the standardized "all persons known" reference frame instructions. In general, the rating data from the four classes twice tested using different reference frame instructions reveal that pupil rating responses are sensitive to their instructed reference frame, that pupils are attending, in part at least, to cues provided by the names of their referent persons. Explicitness of reference frame instruction is viewed as requisite for rater development of a common inter pupil frame of reference. Though the data presented do not permit answer of the question as to which reference frame is best for the social need scale testing of a given rater population, they do, however, unequivocally indicate that without a common structured reference frame, interpretations of either inter group or intragroup comparisons of obtained social peer ratings are, at best, hazardous.

Three general questions relating to the pupil's selection of referent persons, (1) the size of his available reference population, (2) his distribution of social need satisfaction ratings made of persons in this population, and (3) the appropriateness of his selection of persons from this population for referent positions in his Syracuse Scales reference frame, were explored (Section III). Recall lists of "all persons known to you," ratings of these recalled persons, and selections of referent persons for the Syracuse Scales reference frame were obtained from pupils in two sixth grade classes, one third grade class, and in two smaller classes of retardate children. An examination of this recall, rating, and reference frame data revealed (1) that sixth graders, third graders, and older retarded children were able to recall names of many more persons than the minimum required for meaningful reference construction, but that this was less true of the younger retarded group; (2) that the distributions of ratings pupils assigned persons in their recall population were clearly non-normal; that for some classes extreme skewness, either predominantly low ratings as in one sixth grade or predominantly high ratings as in the third grade class, was typical for most class members; and (3) that generally while selection of the extreme anchor referent persons was in accord with ratings made of them on the recall lists, in all classes a considerable preponderance of referent persons selected for the Syracuse Scales reference frame were highest rated persons on the pupils' recall lists. This last finding of over selection of "very much preferred" persons strongly supports an earlier expectation that pupils improperly bisect their "all persons known" continuum; especially the upper half of this continuum. To the extent that this is a general pupil failing, the argument that the Syracuse Scales format and procedures achieve a reference frame of "psychologically equal" separations is not supported.

Extensive examinations were made of institutionalized and public school retarded pupils' performances in coping with the required Syracuse Scales rating tasks in lengthy interview situations (Section IV). An experimental peer rating scale was administered to a class of second graders. This experimental administration, together with interviewer report, led to recommendations for modification of the existing standardized Syracuse Scales directions and format. These modifications included language and rating page simplification, the introduction of a warm-up recall period, an abridged five-category rating scale, altered procedures for selecting referent persons, and the use of a more restricted reference population.

A series of modified scales for social need succorance, achievement recognition, and playmirth, incorporating these above changes in directions and format, were twice administered to some 400 regular and special class elementary pupils enrolled in 16 classes in several geographically dispersed school systems (Section V). The test-retest stability of the individual and mean rating indices obtained for the generally younger (and for the retarded) pupils using the modified scales compared favorably with that reported for the upper elementary pupils in the standardization sample using the standard Syracuse Scales administration. The equivalence of rating indices based on individual and group modified scales administrations was demonstrated in terms of test-retest data obtained from three classes of third graders. The inter scale correlations for the modified scales were similar to those reported for the standardization sample. These inter scale correlations were highest for mean ratings received; somewhat more moderate for mean ratings made, for individual ratings made, and for individual ratings received.

Low negative, near zero, relationships were obtained between the average rating a pupil made and either his intelligence test score or his academic achievement test score at all regular grade levels (Section VI). On the other hand, moderate relationships (r's generally about .50) were obtained between the average rating a pupil received and the intelligence and achievement measures. These two sets of correlations, those near zero for mean ratings made and those considerably more substantial for mean ratings received, describe the pupil rating his classmates generally high or low (relative to his reference frame of all other children he has known) as quite independent of his own academic position within that class, but, at the same time, within his range of ratings made of his classmates, discriminatingly giving his higher ratings to his academically above average classmates.

In the special classes, where in a broader sense of age norms no pupil was superior, this pattern of correlations were generally reversed; that is, r's of about .50 between mean ratings made and achievement test scores and of about zero between mean ratings received and achievement test scores. The poorer academic achievers within each special class clearly rated their classmates as a group higher than did the better academic achievers. However, this relationship of rater leniency (generally higher ratings given others) and within class academic rank of the rater did not extend to within rater discriminations. That is, within the range of generally higher ratings made by the academically poorer pupils and within the range of generally lower ratings made by the academically better pupils, the rating given to a particular classmate was found to be independent of the relative within class academic achievement of that particular ratee.

The above noted differences in the relationship of intelligence test score and ratings for regular and special class pupils was further examined by contrasting the ratings made and received by the low IQ pupils in regular classes with those in the special classes. On all three social need scales the lower IQ pupil in the regular class received ratings significantly lower than those made in the special classes. On the other hand, the low IQ regular class pupil rated his classmates at about the middle of the rating scale (as did the special class pupils) revealing a sizeable difference between the ratings he made of his classmates and those which he received from his classmates.

Three general conclusions may be drawn from these summaries. One: The Syracuse Scales of Social Relations in their present standardized form are not to be recommended for administration in the elementary grades. The support for administrability in the upper elementary grades based on the extensive standardization data reporting relatively smooth classroom administrations and reasonably high test-retest coefficients, is seriously weakened in terms of fifth and sixth grader failure to develop the psychologically equal referent points required by the Syracuse Scales procedures as indicated by their inappropriate selection of reference frame persons. Administration of the Syracuse Scales of Social Relations to younger elementary or to retarded special class pupils is further hampered by the general complexity of the standardized instructions and rating page.

Two: The modifications for the Syracuse Scales of Social Relations (as described in Section IV of this report) in simplifying the directions and format for these scales, extend their administrability to the third grade level and, with individual administration, to all but the youngest educable retarded pupils enrolled in the public school special class. The modified scales introduce the use of a less extensive personal reference population and amended directions for selection of reference frame persons, both modifications designed to achieve a more equal subsectioning of the rater's reference continuum. In terms of test-retest and inter need scale correlational data, the modified scales administered at the third grade level and in the special classes are comparable to the standardized scales administered in the upper elementary grades.

Three: Within the regular third, fourth, fifth, and sixth grade classes tested, academically and intellectually superior pupils tended to receive generally higher ratings from their classmates, academically and intellectually inferior pupils receiving generally lower ratings. This relationship was not maintained within the three special classes tested. Pupils in these classes received ratings from their classmates independent of their (the ratees') relative achievement level within that class. In terms of ratings of all classmates (as a group), the lower achieving special class pupil rated classmates higher than did his better achieving special class peer. This latter was not true within the regular classes tested. The frequently cited sociometric finding that within the regular classes, lower IQ pupils receive fewer peer nominations than do their brighter classmates was supported in terms of rating indices obtained using the Syracuse Scales.

B. Addendum:

An addendum to these summary statements is warranted here in terms of the initial conceptualization of this project. The broad parent research problem set forth by the investigators in their 1960 HEW grant application was the definition and measurement of "the social relations of the mentally handicapped school child in special and in regular classes for the purpose of promoting the understanding of his social structuring and to compare his interperson relationships in these two group conditions" (deJung and Haring, 1960, p.1). The project was conceived of in three phases: Phase I, that of modifying the Syracuse Scales of Social Relations "in terms of simplified directions and format . . . for testing the lower mental age levels of the proposed subjects"; Phase II, an extensive testing of approximately 800 mentally retarded children and classmates carefully sampled to permit inter class analyses, and Phase III, a follow-up of re-assignee and longitudinal control samples from this large Phase II sample. The research program for the Phase I was supported by the Cooperative Research Branch, U. S. Office of Education (Project #1182), and by the University of Kansas.

Though the writing of this report represents to the investigators a (successful) completion of the first phase, no immediate continuation of this project is planned. Two general influences have led to this decision.

The first is the wide spread and increasing conviction on the part of educators and lay persons alike of the positive values of the special classroom, the generally unquestioned acceptance of the special class as a necessary and contributing and philosophically justified part of the public school curricula. The issue of special versus regular class placement is not to be decided in terms of clear, slowly won experimental evidence with respect to the retardates' increased social and academic learning in the different placements. Indeed, the evidence to date has been both contradictory and indecisive (Goldstein, 1962; Johnson, 1962). The issue has, in effect, been preempted by an acknowledgement, one, of the failure to educationally cope with the retarded youngster in the regular class room, and two, by a need to do something. The educator's argument favoring the retardate's enrollment in a less crowded, a more child centered classroom, in a less unfairly competitive, a more accepting of-the-child atmosphere was essentially one of intuitive, observer conviction. Unequivocal experimental evidence or conclusion was not and is not available. The present principal deterrent to increasing numbers of special classes is not contrary persuasion or philosophy but financial and staffing limitations. Experimentally, the issue of special vs. regular class placement for the retarded child has been replaced wihin recent years with questions of which kind of curriculum, what kinds of training for special class teachers, what kinds of recruitment programs would best attract the needed additional teachers. These are the more immediate problems in special class placement today.

A second influence is a growing, at first bothersome, awareness on the part of the investigators that their tools are very limited. The measurement of "social relations" is grossly more than the administration of a respectively reliable and relevant single instrument. The indices provided by the Syracuse Scales provide but one edge of the surface. The possibilities of developing additional measures are both imperative and within reach of the research psychologist. The need, the support for measures of "social relations," is in no way diminished by a somewhat arbitrary (in terms of experimental evidence) educational decision regarding, in this instance, placement of the retarded. The importance of the descriptive evaluative statement of assessment of the pupil's social structurings, of his inter personal relations, of his perceived (and operating) social environments is viewed as crucial to his optimum employment within the school setting.

As an alternative to urginga continuation intoan extensive data collection phase as planned for the initial project, the investigators plan to submit a proposal for independent study and development of instrumentation for the measurement of social relations. The study will be proposed as a further step, as exploration of further ways and means of describing the pupil relevant to his educational-social setting, relevant to the environment in which he will learn.

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APPENDIX A

SYRACUSE SCALES OF SOCIAL RELATIONS

GROUP ADMINISTRATION FOR GRADES 3 - 6

/Draw on the blackboard five boxes similar to those on the top line of the scale booklet. While assistant distributes the test booklets and place-markers, explain:/

"Today we are going to do something different. Everyone will need a pencil and eraser. This is something you will do by yourself. Don't look at anyone else's paper. When you receive your booklet I want you to write your name at the top of the paper where it says 'Name' /Indicate and pause/.

"Now, I want you to think about other children. You know lots of other boys and girls--some are here or in other classes in this school; some may be in a different school, and some may not even go to school. Don't think only of your friends. Think of any boy or girl you can remember. Here is a list of names of boys and girls. /Hang or prop cardboard list of names against front blackboard/. How many of you know a girl named Kathy? Show me by raising your hand. How many of you know more than one Kathy? Show me by raising your hand. And Mark? How many of you know a boy named Mark? Etc., etc. /Read down through the list, skipping around. Try a relatively unpopular name and if only a few children respond, remind the class that "not everyone knows the same people."/

"Of course there are names which aren't on this list. In fact, I expect that most of you know someone whose name is not on this list. Let us see. Who are some of the children you know not on this list? Can you tell me who they are? Remember, don't name only your friends, but try to think of as many other boys and girls as you can. /Encourage a brief session of name recalling, trying to include at least one response from every child and write these names on the board. About 10 minutes of class time should now have passed./

NEED SUCCORANCE:

"I think that is enough names for now. You probably know many more boys and girls, but we won't write them all down. Now, I want you to think of some time when you were unhappy and wanted somebody to help you. Maybe you made a mistake or did the wrong thing. Or maybe you were blamed for something which you didn't do and you felt unhappy and wanted to talk to somebody about it.

"Some boys and girls are kind and helpful when you feel badly. They are understanding and make you feel better when you talk to them. Some boys and girls aren't like that. They don't care very much. They might even make you feel worse. Most boys and girls are probably in between. They are all right, but they are not special. They are medium friends for talking to when you feel badly, but they are not really helpful.

"You know many boys and girls in this classroom and even more who are not here. I want you to pick one boy or girl--any boy or girl whom you know--who is just about MEDIUM; not especially helpful--someone just medium for talking to when you need help and feel badly. Think carefully. Now write the name of that boy or girl in the long middle box /Indicate/ at the top of this page--with the word MEDIUM under it. You don't need to write all of his or her name; only the first name and first letter of the last name. If you have a question, raise your hand. Remember, don't look at anyone else's paper. /Pause/.

"Now, we need to think of the boy or girl you would MOST like to have help you if you were in trouble--more than any other boy or girl you know. Write that boy's or girl's first name and initial in the box with the star and the word MOST under it /Indicate and pause/.

"Now think of the boy or girl you would least of all like to have help you if you were in trouble--the boy or girl to whom you would least want to talk to if you were in trouble and felt unhappy. Write that boy's or girl's first name and initial in the box with the word LEAST under it at the far left. /Indicate and pause/.

"There are now two empty boxes left. The one between the MOST box and the MEDIUM boxes /Indicate/ is for some boy or girl who is a little better than your medium person for being with when you are in trouble and feel unhappy. There are probably a lot of boys and girls you know between the 'medium' name and the 'most' name that you would go to if you needed help and felt badly. Think of a boy or girl who seems to be HALFWAY BETWEEN the names in the 'most' and 'medium' boxes--someone not especially good for helping you feel better when you are in trouble, but better than the medium person. Write that name /Pause/.

"Now think of some boy or girl who belongs in the box that is still empty /Indicate/. This is somebody less good for going to when you need help than the person in the long medium box /Indicate/, but better than the 'least' person /Indicate/--someone HALFWAY BETWEEN these names /Indicate/. Write that boy's or girl's name in this box /Pause/.

"Now pick up your place marker and put it under the name of the first boy (or girl) on your list, like this /Demonstrate/. Look at the names which you have just written in the five boxes at the top of the page. These are names of boys and girls you would want, or not want, to be with if you needed help and were unhappy. Which of these five people is most like ***** for helping you when you are in trouble?

"I want you to think about which of the five people ***** is most like. Draw a circle inside the small box directly under the name of the person ***** is most like. For example, if **** is most like the person in the long, medium box, circle in here /Indicate/. If ***** is most like the inbetween person near least, circle in here /Indicate/. Are there any questions? /Pause/. Now take your pencil and make your circle for ***** /Pause/.

"Now move your place marker down to line two and read the next name to yourself. Do the same thing for #####. You may go as fast as you can, but each time I want you to think about how kind and helpful the boys or girls in your class would be if you were unhappy and in trouble. Compare each one to the persons whose names you wrote in the boxes at the top of the page.

"When you come to your own name, don't draw a circle in any box. Instead, draw a line across all five boxes. All right? You may work by yourself now. When you finish one page, go on to the next. Don't look at what anyone else is doing. Raise your hand if you need help."

/Move around the room to see that the pupils are marking the papers evaluatively. When some pupils seem to be finished, say:/ "When you have finished, check to be sure you have written your name, and check to see that you didn't skip any lines. After you have checked, raise your hand and we will pick up your paper."

/Sight check each test booklet as you collect it for name, line across page next to own name, and duplications or omissions of ratings./

NEED ACHIEVEMENT RECOGNITION:

/Distribute the second booklet/.

"Again write your name on your booklet. Find your name in the list and draw a line across the boxes beside it. Don't do anything else until I tell you.

"Now let's take a few minutes and see if we can think of a few more boys and girls you know whom you haven't mentioned. Does anyone have a name? /Stimulate recall by discussion, and write additional names on the board. From three to five minutes should be ample here. Reserve approximately 15 minutes to administer each additional need situation./ That's enough names. Now, let's think about something different.

"We have thought about people who are helpful to talk to when you are in trouble. Now let's think about people who are helpful in another way. Sometimes you may start to do something or start to make something to show to a lot of people and you find that you need help. You need someone to help you do a good job that you can be proud of. You don't want someone to do it instead of you. You only want their help.

"Some boys and girls you know are helpful to work with. Some of them are no help at all; in fact, you'd rather do (finish) your work without them. Probably, most boys and girls you know are medium at helping you do a job that other people will say is 'a good job.'

"I want you to think of some boy or girl you know who is just about MEDIUM for helping you do things. Think carefully. Write that boy's or girl's name in the long, middle box /Indicate/ at the top of this page. You don't need to write the last names--just first names and last initial /Pause/. Don't look at anyone else's paper.

"Now we need to think of the boy or girl who would be best at helping you do or make something--better than any other boy or girl you know. Write that boy's or girl's first name and initial in the box with the star and the word MOST under it /Indicate and pause/.

"Now think of the boy or girl whom you would least like to have help you; the boy or girl you would least want to have help you do or make something to show other people. Write that boy's or girl's first name and initial in the box with the word LEAST under it at the far left /Indicate and pause/.

"Now we still have two empty boxes /Indicate/. The one between the MOST box and the MEDIUM box /Indicate/ is for some boy or girl who is a little more helpful in doing things than the 'medium' person. There are a lot of boys and girls between the 'medium' name and the 'most' name who would be helpful. Think of the boy or girl who seems to be HALFWAY BETWEEN the names you already have--someone, not the best helper but better than the medium person. Write that name /Pause/.

"Now think of some boy or girl who belongs in the box that is still empty /Indicate/. This is somebody less good for helping do things than the person in the long, medium box / Indicate/, but better than the least person /Indicate/--someone HALFWAY BETWEEN the two names you already have. Write that 'in between' boy's or girl's name in this box /Pause/.

"Now we do just as we did before. Look at the names you have written in the five boxes. These are boys and girls you would want to help you or would not want to help you do something to show people. Use your marker to help keep your place. Read the names of your classmates one by one. As you move down this list, think of what it would be like to work with them. Compare each boy and girl in your class with the names in the boxes at the top of the page. As before, make a circle in the small box directly under the name of the person who seems most like the classmate you are thinking about. All right? You may begin now. When you finish one page, go on to the next. Don't look at what anyone else is doing. Raise your hand if you need help.

/Move around the room to see that pupils are marking the papers evaluatively. When some pupils seem to be finished, say:/ "When you are finished, check to be sure you have written your name and check to be sure that you didn't skip any lines. After you have checked, raise your hand and we will pick up your paper."

/Sight check each test booklet as you collect it for name, line across page next to own name, and for duplication or omissions of ratings./

NEED PLAYMIRTH:

/Distribute the third booklet./ "Again write your name. Then find your name in the list below and draw a line across the boxes beside it. Don't do anything else until I tell you. Before we begin, let's see if there aren't a few more boys and girls we know. What boys and girls not in the class and not already on the board do you know? /Allow a few minutes of recall, writing these names on the board./ That's enough names for now.

"This last one should be the easiest. This time we are going to think about how much fun different boys and girls are. I want you to think of some time you might be having a party. You want to invite boys and girls who would play games and do things to make everyone laugh and have fun. Some people are lots of fun and some are no fun at all. First, think of someone who is about MEDIUM--who is all right to be with, but not especially fun--just medium. Write this boy's or girl's name in the long, middle box /Indicate/ with the word MEDIUM under it /Pause/.

"Now, of all the boys and girls you know, who would be the most fun of all to be with or have at a party? Write that boy's or girl's name in the box with the star and the word MOST under it. /Indicate and pause./ Now, the boy or girl who would be the LEAST fun, the person whom you would least want to invite to a party. Write his or her name in the box at the far left with the word LEAST under it /Indicate and pause/.

"Now there are two empty boxes left /Indicate/. The one between the MOST box and the MEDIUM box /Indicate/ is for some boy or girl who is a little better than your medium person for being with to laugh and have fun. There are a lot of boys and girls between the 'medium' name and the 'most' name who are fun to be with. Think of a boy or girl who seems to be HALFWAY BETWEEN the names in the 'most' and 'medium' boxes--someone not especially good for having fun with but better than your medium person. Write that name /Pause/.

"Now think of some boy or girl who belongs in the box that is still empty /Indicate/. This is somebody *less* good for inviting to parties and having fun than the person in the long, medium box /Indicate/, but better than the least person /Indicate/--someone HALFWAY BETWEEN these names /Indicate/. Write that boy's or girl's name in this last box /Pause/.

"Now we do just as we did before. Put your place marker under the name of the first boy or girl on your list, like this /Demonstrate/. Look at the names you just wrote in the five boxes. These are names of boys and girls you would want, or would not want, to invite to your party. Use your marker to help keep your place. As you move down your list of names, think of how much fun different boys and girls would be at a party. Compare each boy and girl in your class with the names in the large boxes at the top of the page, as before, making a circle in the box which is directly under the name of the person most like the name by your place marker. When you finish one page, go on to the next until you are finished. Raise your hand if you have a question.

/Move around the room to see that the pupils seem to be marking their papers evaluatively. When some pupils seem to be finished, say:/ "When you have finished, check to be sure you have written your name and check to see that you didn't skip any lines. After you have checked, raise your hand and we will pick it up."

/Sight check each test booklet for duplications or omissions of ratings, as you collect it./

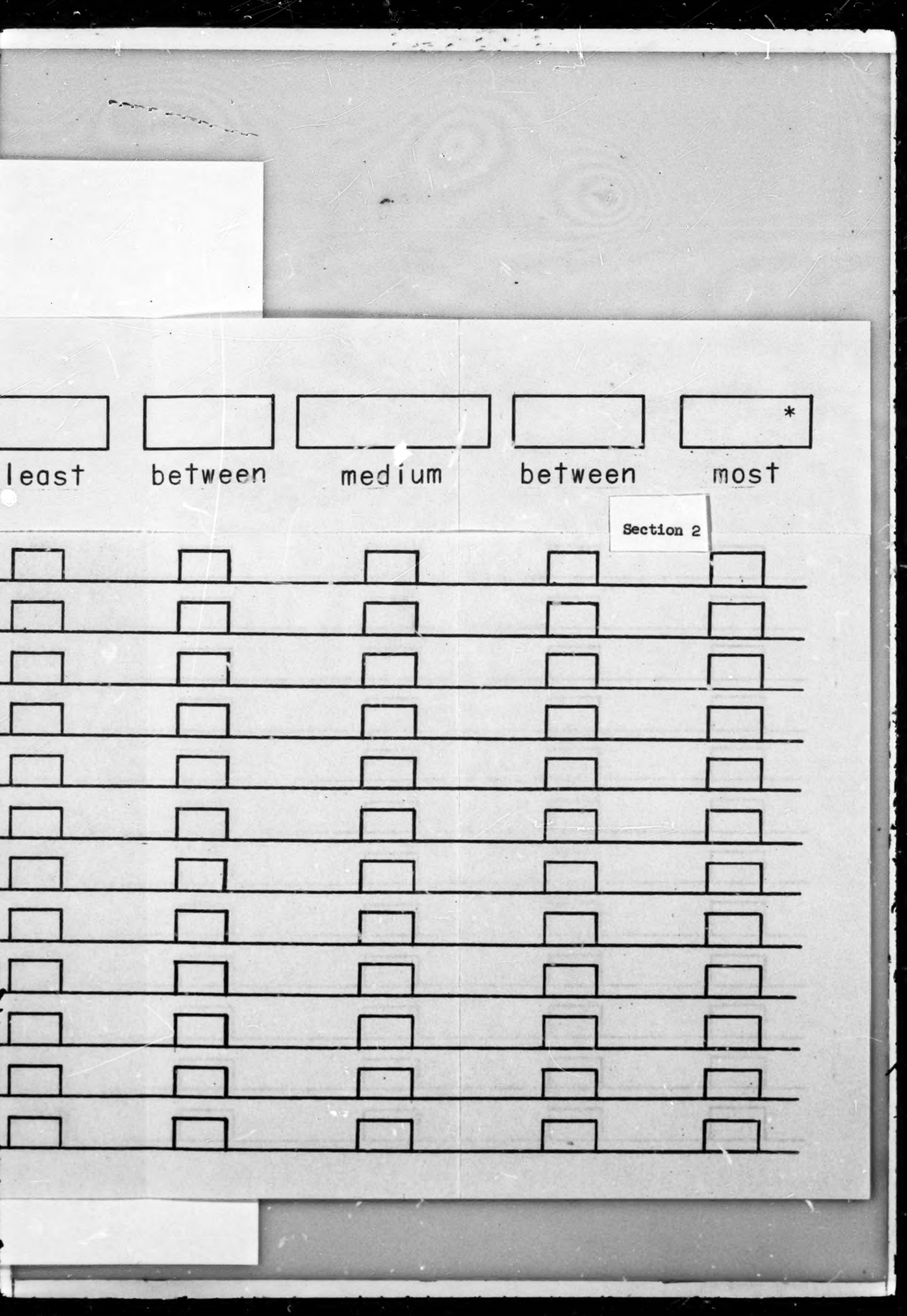
APPENDIX B

Scale Format for Parsons Modification of Syracuse Scales of Social Relations

EXPERIMENTAL MODIFICATION
SYRACUSE SCALES OF SOCIAL RELATIONS

Section 1

	☐	☐
Name ________	least	between
1	☐	☐
2	☐	☐
3	☐	☐
4	☐	☐
5	☐	☐
6	☐	☐
7	☐	☐
8	☐	☐
9	☐	☐
10	☐	☐
11	☐	☐
12	☐	☐



☐	☐	☐	☐	☐ *
least	between	medium	between	most

Section 2

☐	☐	☐	☐	☐
☐	☐	☐	☐	☐
☐	☐	☐	☐	☐
☐	☐	☐	☐	☐
☐	☐	☐	☐	☐
☐	☐	☐	☐	☐
☐	☐	☐	☐	☐
☐	☐	☐	☐	☐
☐	☐	☐	☐	☐
☐	☐	☐	☐	☐
☐	☐	☐	☐	☐
☐	☐	☐	☐	☐

APPENDIX C

Roster of Pupils Providing Data for Parsons Modification of Syracuse Scales of Social Relations: Sex, CA, IQ, Achievement Test Scores

Class 6C[1]

Pupil No.	Sex	Months Age	IQ[2]	Achiev.[3] grade level	Pupil No.	Sex	Months Age	IQ[2]	Achiev.[3] grade level
1	M	136	100	7.1	17	M	139	104	7.8
2	F	141	124	9.9	18	F	136	76	4.8
3	M	138	115	9.6	19	M	141	97	8.5
4	F	140	98	7.2	20	F	137	120	7.5
5	M	141	115	10.2	21	M	141	80	6.5
6	F	138	---	7.2	22	M	139	81	5.4
7	M	140	82	4.1	23	M	138	104	8.7
8	F	137	82	5.9	24	F	140	104	7.7
9	M	137	107	9.2	25	F	141	82	5.3
10	F	---	100	--	26	F	---	---	--
11	M	141	109	9.0	27	F	136	128	10.2
12	F	138	106	7.5	28	F	139	114	9.0
13	M	137	117	10.0	29	F	140	109	8.3
14	F	---	112	--	30	F	139	98	8.2
15	M	138	107	9.2	31	F	138	85	6.8
16	F	133	98	5.4	32	F	138	103	7.2

Note: Achievement tests were given Classes 3A and 3B one month prior to administration of the Syracuse Scales of Social Relations, to Special Classes D and E three months prior; to Classes 3E and 3F three months subsequent; to Classes 6C, 6F, 5A, 5B, 4A, 4B, 3C, 3D, SpC five months subsequent.

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[1] Syracuse Scales rating data for these pupils are included in Tables 2.3, 2.4, 4.4, 5.1, 5.7, 5.8, 5.9, 5.10, 6.1, 6.2.

[2] Detroit Alpha Test of Mental Maturity.

[3] Stanford Achievement Test.

Class 6F[1]

Pupil No.	Sex	Months Age	IQ[2]	Achiev.[3] grade level	Pupil No.	Sex	Months Age	IQ[2]	Achiev.[3] grade level
1	M	146	104	10.2	17	M	---	---	--
2	F	---	---	--	18	F	143	---	7.2
3	M	144	104	9.6	19	M	145	100	8.0
4	F	143	90	7.2	20	F	147	86	6.6
5	M	147	114	10.7	21	M	149	97	5.3
6	F	147	108	8.8	22	F	143	97	6.5
7	M	146	95	10.1	23	M	145	96	8.6
8	F	146	101	7.8	24	F	144	118	9.6
9	M	143	117	10.2	25	M	148	131	10.3
10	F	145	116	10.0	26	F	141	106	7.9
11	M	144	82	5.3	27	M	148	76	5.5
12	F	142	136	9.9	28	M	157	84	6.7
13	M	146	92	8.4	29	M	146	99	8.0
14	F	144	77	6.3	30	M	142	95	6.6
15	M	145	100	9.9	31	M	140	---	8.1
16	F	143	111	10.4					

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[1] Syracuse Scales rating data for these pupils are included in Tables 4.4, 5.1, 5.2, 5.3, 5.4, 5.5, 5.6, 5.9, 5.10, 6.1, 6.2.

[2] Detroit Alpha Test of Mental Maturity.

[3] Stanford Achievement Test.

Class 5A[1]

Pupil No.	Sex	Months Age	IQ[2]	Achiev.[3] grade level	Pupil No.	Sex	Months Age	IQ[2]	Achiev.[3] grade level
1	M	132	103	8.2	15	M	148	114	9.6
2	F	130	114	6.9	16	F	---	117	--
3	M	135	108	9.0	17	M	131	101	6.8
4	F	131	97	8.2	18	F	131	106	8.1
5	M	131	96	7.3	19	M	132	82	7.6
6	F	147	---	5.0	20	F	123	93	5.7
7	M	128	---	6.7	21	M	---	103	--
8	F	131	103	7.4	22	F	---	---	--
9	M	133	---	6.0	23	M	135	88	7.2
10	F	130	101	7.2	24	M	132	106	7.3
11	M	133	98	8.4	25	M	131	106	7.0
12	F	131	105	6.7	26	M	132	111	9.6
13	M	125	73	5.1	27	M	134	115	8.4
14	F	148	80	5.7					

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[1] Syracuse Scales rating data for these pupils are included in Tables 2.3, 2.4, 4.4, 5.7, 5.8, 5.9, 5.10, 6.1, 6.2.

[2] Detroit Alpha Test of Mental Maturity.

[3] Stanford Achievement Test.

Class 5B[1]

Pupil No.	Sex	Months Age	IQ[2]	Achiev.[3] grade level	Pupil No.	Sex	Months Age	IQ[2]	Achiev.[3] grade level
1	F	127	106	7.3	15	M	127	108	7.2
2	M	125	107	8.6	16	M	127	127	9.6
3	M	---	---	--	17	F	125	131	8.7
4	F	---	96	--	18	M	129	---	8.2
5	M	128	97	6.1	19	F	129	118	8.0
6	F	125	97	6.5	20	F	125	137	9.6
7	F	126	108	8.9	21	M	130	106	7.9
8	F	126	93	6.0	22	M	128	106	6.7
9	M	128	91	5.9	23	F	125	91	5.6
10	F	124	99	5.0	24	F	121	87	4.6
11	F	127	---	7.0	25	M	130	96	6.3
12	F	128	99	7.0	26	F	128	105	7.2
13	F	127	108	6.6	27	F	128	---	8.7
14	F	127	110	9.0	28	M	128	---	6.0

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[1] Syracuse Scales rating data for these pupils are included in Tables 4.4, 5.1, 5.2, 5.3, 5.4, 5.5, 5.6, 5.9, 5.10, 6.1.

[2] Detroit Alpha Test of Mental Maturity.

[3] Stanford Achievement Test.

Class 4A[1]

Pupil No.	Sex	Months Age	IQ[2]	Achiev.[3] grade level
1	F	122	80	5.5
2	M	119	---	5.6
3	F	118	108	5.6
4	M	127	---	5.1
5	F	118	111	7.2
6	M	123	110	5.2
7	F	117	92	5.4
8	M	117	85	6.1
9	F	121	92	4.6
10	M	116	134	6.5
11	F	117	100	7.0
12	M	117	---	5.8
13	F	118	113	5.5
14	M	116	135	7.4
15	F	---	126	--
16	M	120	---	5.7
17	F	119	117	7.1
18	M	---	---	--
19	F	113	---	6.0
20	M	117	---	6.6
21	F	116	102	5.2
22	M	119	104	5.4
23	F	117	145	6.3
24	M	118	107	6.5
25	F	116	105	6.5
26	M	121	121	5.9
27	F	123	100	4.4
28	M	118	100	5.2
29	F	119	96	5.3
30	M	121	106	9.6
31	F	118	119	6.0
32	M	119	120	7.3
33	M	127	96	5.3

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[1] Syracuse Scales rating data for these pupils are included in Tables 4.4, 5.1, 5.2, 5.3, 5.4, 5.5, 5.6, 5.7, 5.8, 5.9, 5.10, 6.1, 6.2.

[2] Detroit Alpha Test of Mental Maturity.

[3] Stanford Achievement Test.

Class 4B[1]

Pupil No.	Sex	Months Age	IQ[2]	Achiev.[3] grade level
1	F	112	137	7.0
2	M	116	125	5.6
3	F	---	---	--
4	M	129	109	5.0
5	F	113	111	4.2
6	M	115	100	5.9
7	F	112	105	5.3
8	M	---	---	--
9	F	---	---	--
10	M	115	119	7.2
11	F	113	108	6.0
12	M	126	---	5.2
13	F	115	121	6.3
14	M	114	117	6.6
15	F	114	92	4.8
16	M	116	111	4.7
17	F	112	103	5.5
18	M	115	---	5.6
19	F	116	---	5.3
20	M	116	---	7.3
21	F	113	134	7.3
22	M	113	125	7.3
23	F	115	---	4.4
24	M	113	119	5.8
25	F	113	107	6.8
26	M	114	103	4.8
27	F	118	---	4.8
28	F	122	---	2.7
29	F	113	112	5.1
30	F	118	---	6.5
31	F	116	---	6.1
32	F	115	74	3.9

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[1] Syracuse Scales rating data for these pupils are included in Tables 4.4, 5.1, 5.2, 5.3, 5.4, 5.5, 5.6, 5.9, 5.10, 6.1, 6.2.

[2] Detroit Alpha Test of Mental Maturity.

[3] Stanford Achievement Test.

Class 3A[1]

Pupil No.	Sex	Months Age	IQ[2]	Achiev.[3] grade level	Pupil No.	Sex	Months Age	IQ[2]	Achiev.[3] grade level
1	M	96	118	5.2	13	F	100	120	4.0
2	M	97	113	4.1	14	F	96	117	4.8
3	M	102	107	3.9	15	F	96	115	3.9
4	M	101	110	4.4	16	F	99	122	4.7
5	M	102	117	4.5	17	F	98	133	5.0
6	M	106	91	2.8	18	F	98	98	2.6
7	M	102	106	3.2	19	F	95	105	3.0
8	M	97	115	5.1	20	F	98	112	4.1
9	M	96	130	4.2	21	F	96	130	5.6
10	M	106	100	3.3	22	F	100	104	4.0
11	M	96	111	4.0	23	F	103	110	4.4
12	M	102	108	2.8	24	F	117	100	3.8

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[1] Syracuse Scales rating data for these pupils are included in Tables 3.1, 3.2, 3.3, 4.4, 5.1, 5.2, 5.3, 5.4, 5.5, 5.6, 5.7, 5.8, 5.9, 5.10, 6.1.

[2] SRA Primary Mental Abilities Test.

[3] SRA Achievement Series.

Class 3B[1]

Pupil No.	Sex	Months Age	IQ[2]	Achiev. grade level[3]	Pupil No.	Sex	Months Age	IQ[2]	Achiev. grade level[3]
1	M	101	118	4.2	12	F	95	126	4.1
2	M	106	124	4.5	13	F	100	120	4.7
3	M	97	110	3.2	14	F	103	113	4.7
4	M	103	115	3.5	15	F	100	100	3.0
5	M	104	111	5.6	16	F	106	103	4.9
6	M	96	117	4.8	17	F	101	128	4.9
7	M	96	110	4.3	18	F	101	110	3.6
8	M	105	104	3.9	19	F	98	---	6.0
9	M	96	112	2.9	20	F	106	118	4.8
10	M	105	113	3.6	21	F	100	124	4.5
11	M	96	113	3.4	22	F	105	115	5.7

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[1] Syracuse Scales rating data for these pupils are included in Tables 4.4, 5.1, 5.2, 5.3, 5.4, 5.5, 5.6, 5.9, 5.10, 6.1.

[2] SRA Primary Mental Abilities Test.

[3] SRA Achievement Series.

Class 3C[1]

Pupil No.	Sex	Months Age	IQ[2]	Achiev.[3] grade level	Pupil No.	Sex	Months Age	IQ[2]	Achiev.[3] grade level
1	M	116	96	2.6	15	M	120	78	1.5
2	F	116	104	3.7	16	F	108	127	5.5
3	M	110	66	1.9	17	M	111	66	1.6
4	F	---	80	---	18	F	127	---	2.6
5	M	112	92	4.2	19	M	109	80	2.3
6	F	110	96	3.7	20	F	108	97	4.2
7	M	110	137	5.6	21	M	110	105	3.6
8	F	110	98	3.4	22	F	111	98	3.8
9	M	108	104	4.6	23	M	108	132	6.7
10	F	107	108	3.8	24	F	---	---	---
11	M	111	125	5.3	25	M	106	107	4.9
12	F	108	105	5.5	26	F	103	---	4.4
13	M	106	119	6.4	27	M	111	95	3.5
14	F	116	109	4.1					

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[1] Syracuse Scales rating data for these pupils are included in Tables 4.4, 5.1, 5.2, 5.3, 5.4, 5.5, 5.6, 5.7, 5.8, 5.9, 5.10, 6.1, 6.2.

[2] Detroit Alpha Test of Mental Maturity.

[3] Stanford Achievement Test.

Class 3D[1]

Pupil No.	Sex	Months Age	IQ[2]	Achiev.[3] grade level	Pupil No.	Sex	Months Age	IQ[2]	Achiev.[3] grade level
1	M	101	123	5.2	15	M	100	149	4.2
2	F	100	102	3.5	16	F	105	127	4.4
3	M	103	95	4.2	17	M	103	140	6.3
4	F	109	---	4.6	18	F	101	133	6.4
5	M	105	86	2.8	19	M	103	112	4.9
6	F	104	127	4.6	20	F	104	98	4.2
7	M	102	114	3.5	21	M	103	127	5.9
8	F	102	112	4.6	22	F	104	165	4.4
9	M	104	88	2.4	23	M	118	94	3.7
10	F	103	99	2.7	24	M	100	119	3.6
11	M	100	---	3.6	25	M	104	125	4.9
12	F	100	115	4.2	26	M	---	124	---
13	M	101	104	4.9	27	F	101	129	4.5
14	F	---	---	---	28	M	101	126	3.7

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[1] Syracuse Scales rating data for these pupils are included in Tables 4.4, 5.1, 5.2, 5.3, 5.4, 5.5, 5.6, 5.9, 5.10, 6.1.

[2] Detroit Alpha Test of Mental Maturity.

[3] Stanford Achievement Test.

Class 3E[1]

Pupil No.	Sex	Months Age	IQ[2]	Achiev.[3] grade level	Pupil No.	Sex	Months Age	IQ[2]	Achiev.[3] grade level
1	M	109	111	3.5	17	M	---	---	---
2	F	100	110	3.6	18	F	99	118	4.9
3	M	96	112	4.3	19	M	106	96	5.0
4	F	102	111	4.4	20	F	---	---	---
5	M	105	123	4.8	21	M	103	96	3.6
6	F	---	---	---	22	F	96	97	4.7
7	M	102	88	3.3	23	M	109	106	3.6
8	F	101	115	3.8	24	F	105	101	3.9
9	M	99	101	3.9	25	M	101	121	5.8
10	F	96	97	3.5	26	F	103	136	6.7
11	M	102	100	3.3	27	M	107	104	2.4
12	F	109	90	3.6	28	F	107	101	4.0
13	M	107	128	5.2	29	M	107	93	4.1
14	F	104	90	3.7	30	F	102	110	4.7
15	M	96	99	4.2	31	M	103	100	3.5
16	F	106	119	6.0	32	F	118	95	3.3
					33	M	102	105	4.4

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[1] Syracuse Scales rating data for these pupils are included in Tables 4.4, 5.1, 5.2, 5.3, 5.4, 5.5, 5.6, 5.9, 5.10, 6.1.

[2] Lorge-Thorndike Intelligence Tests.

[3] Stanford Achievement Test.

Class 3F[1]

Pupil No.	Sex	Months Age	IQ[2]	Achiev.[3] grade level
1	M	106	124	5.8
2	F	113	112	4.7
3	M	99	106	5.3
4	F	106	103	---
5	M	105	113	4.5
6	F	102	85	4.6
7	M	98	91	3.8
8	F	100	121	4.5
9	M	96	101	4.6
10	F	111	109	4.6
11	M	105	113	5.0
12	F	112	107	4.1
13	M	105	98	3.3
14	F	106	91	4.1
15	M	107	103	4.6
16	F	104	121	---
17	M	100	113	4.4
18	F	104	133	6.1
19	M	118	88	2.8
20	F	98	118	4.6
21	M	102	133	5.2
22	F	98	101	4.6
23	M	99	118	4.0
24	F	97	95	3.8
25	M	97	91	3.9
26	F	95	115	5.4
27	M	105	121	4.2
28	F	105	105	4.3
29	M	103	128	5.0
30	F	103	96	3.9
31	M	95	110	4.0
32	M	99	101	4.1
33	M	103	94	4.2

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[1] Syracuse Scales rating data for these pupils are included in Tables 4.4, 5.1, 5.2, 5.3, 5.4, 5.5, 5.6, 5.9, 5.10, 6.1, 6.2.

[2] Lorge-Thorndike Intelligence Tests.

[3] Stanford Achievement Test.

Class 3G[1]

Pupil No.	Sex	Months Age	IQ[2]	Achiev.[3] grade level	Pupil No.	Sex	Months Age	IQ[2]	Achiev.[3] grade level
1	F	106	117	4.4	13	M	100	96	3.0
2	M	103	105	3.8	14	F	105	109	4.0
3	F	116	107	3.7	15	M	113	111	2.9
4	M	108	109	3.7	16	M	104	108	4.4
5	F	95	115	2.8	17	F	100	106	4.6
6	M	96	99	3.7	18	M	98	109	3.6
7	F	106	97	4.1	19	M	96	112	3.8
8	M	118	99	3.4	20	F	106	134	5.2
9	M	102	122	3.8	21	M	105	116	4.7
10	F	101	125	3.9	22	M	101	120	4.2
11	M	101	104	3.8	23	M	99	110	3.5
12	M	101	131	6.0	24	M	99	116	3.5

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[1] Syracuse Scales rating data for these pupils are included in Tables 4.4, 5.1, 5.2, 5.3, 5.4, 5.5, 5.6, 5.9, 5.10, 6.1.

[2] SRA Primary Mental Abilities Test.

[3] SRA Achievement Series.

Class SpC[1]

Pupil No.	Sex	Months Age	IQ[2]	Achiev.[3] grade level	Pupil No.	Sex	Months Age	IQ[2]	Achiev.[3] grade level
1	M	138	105	2.9	9	M	126	82	1.2
2	F	139	63	2.3	10	F	135	<45	---
3	M	122	<45	---	11	M	140	66	1.8
4	F	151	79	3.6	12	F	138	104	2.6
5	M	114	77	1.5	13	M	145	68	2.3
6	F	120	66	2.6	14	F	138	79	1.8
7	M	115	106	2.3	15	F	145	89	4.0
8	F	151	51	2.2					

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[1] Syracuse Scales rating data for these pupils are included in Tables 4.4, 5.1, 5.2, 5.3, 5.4, 5.5, 5.6, 5.7, 5.8, 5.9, 5.10, 6.1, 6.2.

[2] Wechsler Intelligence Scale for Children.

[3] Stanford Achievement Test.

Class SpD[1]

Pupil No.	Sex	Months Age	IQ[2]	Achiev.[3] grade level	Pupil No.	Sex	Months Age	IQ[2]	Achiev.[3] grade level
1	F	151	49	1.8	8	M	172	81	3.9
2	M	169	62	2.4	9	F	166	67	2.8
3	M	155	64	2.0	10	F	154	62	---
4	F	174	85	4.9	11	M	174	70	---
5	F	157	63	3.2	12	F	174	70	---
6	M	179	55	3.0	13	F	177	68	---
7	M	163	--	2.1					

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[1] Syracuse Scales rating data for these pupils are included in Tables 4.4, 5.1, 5.2, 5.3, 5.4, 5.5, 5.6, 5.7, 5.8, 5.9, 5.10, 6.1, 6.2.

[2] Wechsler Intelligence Scale for Children or Stanford Binet, Form L.

[3] Metropolitan Achievement Test.

Class SpE[1]

Pupil No.	Sex	Months Age	IQ[2]	Achiev.[3] grade level	Pupil No.	Sex	Months Age	IQ[2]	Achiev.[3] grade level
1	M	173	65	4.1	5	F	155	72	---
2	M	171	69	2.6	6	M	175	58	5.1
3	F	173	57	3.9	7	M	161	65	3.6
4	F	185	70	3.5					

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[1] Syracuse Scales rating data for these pupils are included in Tables 4.4, 5.1, 5.2, 5.3, 5.4, 5.5, 5.6, 5.7, 5.8, 5.9, 5.10, 6.1, 6.2.

[2] Wechsler Intelligence Scale for Children or Stanford Binet, Form L.

[3] California Achievement Test and Stanford Achievement Test.

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APPENDIX D

Mean Ratings Made and Received on Two Administrations[1] of the Modified Syracuse Scales of Social Relations: Social Need Scales Succorance (Suc), Achievement Recognition (AR), and Playmirth (Play)

Class 6C (Retest Interval: 1 Week)

Pupils	Initial Test						Retest					
	Suc		AR		Play		Suc		AR		Play	
	$\bar{X}_m$	$\bar{X}_r$	$\bar{X}_m$	$\bar{X}_r$	$\bar{X}_m$	$\bar{X}_r$	$\bar{X}_m$	$\bar{X}_r$	$\bar{X}_m$	$\bar{X}_r$	$\bar{X}_m$	$\bar{X}_r$
1	9	10	9	18	11	18	4	11	8	17	5	18
2	16	20	21	20	18	19	17	15	18	17	16	20
3	12	16	16	24	16	21	12	14	14	19	16	17
4	17	18	15	17	17	20	19	14	19	16	22	19
5	25	16	24	22	22	23	22	13	19	16	18	19
6	16	22	17	25	14	30	8	20	10	22	9	28
7	13	4	13	8	14	6	12	6	12	8	12	6
8	24	9	22	8	26	11	23	9	24	9	24	8
9	12	14	12	19	9	15	7	14	6	15	6	16
10	18	16	34	17	--	21	12	15	13	15	20	19
11	11	17	18	21	15	18	6	14	11	17	12	16
12	4	13	18	11	11	15	7	11	16	12	17	12
13	13	24	12	33	17	26	9	20	10	24	13	22
14	7	12	8	14	12	16	10	10	11	10	13	9
15	17	19	17	22	12	20	13	14	12	18	11	18
16	24	9	27	8	29	11	22	8	22	9	27	12
17	5	10	13	13	16	10	13	9	14	12	14	10
18	--	9	--	11	--	14	14	9	19	8	26	12
19	14	26	16	33	18	26	9	18	12	26	12	24
20	12	20	17	24	20	23	12	16	15	17	14	20
21	15	7	16	8	13	6	11	7	13	8	12	28
22	32	10	26	10	29	8	23	8	25	10	23	10
23	8	21	8	25	10	20	11	17	12	17	17	17
24	18	17	18	20	21	16	11	18	17	16	15	20
25	15	6	19	6	16	7	12	5	10	8	13	6
26	21	12	18	13	23	15	20	8	21	11	20	12
27	23	27	29	28	27	26	18	18	26	21	28	24
28	10	29	14	31	10	29	10	23	8	22	14	26
29	16	20	18	21	18	20	17	17	19	18	16	20
30	15	7	16	7	15	6	14	9	16	7	15	8
31	21	16	21	15	19	16	19	12	14	12	19	17
32	20	19	20	21	22	22	7	18	14	18	14	19

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[1] Class 3B was administered an individual followed by group scale administration; Class 3A and 3C a group followed by an individual scale administration. Both testings for special class pupils were individually administered. All other classes received two group administrations. The modification administered to Classes 3A and 3B employed an "all persons known" reference frame; in all other classes the "all children known" reference frame was used (see Section II).

Mean Ratings Made and Received on Two Administrations[1] of the Modified Syracuse Scales of Social Relations: Social Need Scales Succorance (Suc), Achievement Recognition (AR), and Playmirth (Play)

Class 6F (Retest Interval: 1 Week)

Pupils	Initial Test						Retest					
	Suc		AR		Play		Suc		AR		Play	
	$\bar{X}_m$	$\bar{X}_r$	$\bar{X}_m$	$\bar{X}_r$	$\bar{X}_m$	$\bar{X}_r$	$\bar{X}_m$	$\bar{X}_r$	$\bar{X}_m$	$\bar{X}_r$	$\bar{X}_m$	$\bar{X}_r$
1	--	9	--	14	--	13	18	13	18	16	13	14
2	10	16	11	18	9	13	10	19	15	16	10	16
3	10	11	8	16	11	15	10	16	11	17	11	15
4	10	15	10	13	11	12	7	16	7	11	9	10
5	14	21	20	22	16	25	19	24	22	27	21	24
6	9	8	14	12	12	8	13	10	17	9	13	9
7	19	10	17	10	20	11	16	14	17	10	18	11
8	--	9	--	12	--	10	15	10	15	7	12	8
9	--	17	--	17	--	18	22	19	23	19	18	21
10	17	22	25	22	21	18	24	23	19	25	18	22
11	18	16	22	20	20	19	22	23	15	23	15	22
12	8	21	8	19	7	20	9	21	10	19	9	20
13	--	19	--	22	--	20	23	24	20	23	16	23
14	19	8	21	6	16	8	16	9	15	7	19	7
15	13	20	12	22	17	24	22	23	17	23	16	25
16	6	10	16	10	11	7	14	11	19	11	15	10
17	18	6	17	8	20	9	22	10	21	10	21	8
18	19	14	20	16	22	14	16	16	17	14	16	13
19	8	16	16	20	15	20	15	21	18	21	17	18
20	20	8	17	8	23	6	22	12	23	8	24	8
21	17	8	26	6	10	11	27	11	16	10	13	8
22	10	20	8	16	6	19	9	18	6	16	8	14
23	29	14	22	17	25	17	21	16	17	19	21	17
24	11	24	15	22	15	20	14	26	14	22	13	21
25	13	18	11	22	14	22	16	19	19	23	17	21
26	19	12	12	12	14	11	18	12	12	12	15	10
27	14	13	14	14	18	15	13	16	15	15	10	15
28	13	15	15	21	18	20	18	19	16	20	17	19
29	14	15	15	17	13	16	15	15	16	18	17	16
30	18	16	23	18	14	15	23	18	21	18	19	17
31	10	11	13	17	14	14	16	18	16	17	16	15

Mean Ratings Made and Received on Two Administrations[1] of the Modified Syracuse Scales of Social Relations: Social Need Scales Succorance (Suc), Achievement Recognition (AR), and Playmirth (Play)

Class 5A (Retest Interval: 1 Week)

Pupils	Initial Test						Retest					
	Suc		AR		Play		Suc		AR		Play	
	$\overline{X}_m$	$\overline{X}_r$	$\overline{X}_m$	$\overline{X}_r$	$\overline{X}_m$	$\overline{X}_r$	$\overline{X}_m$	$\overline{X}_r$	$\overline{X}_m$	$\overline{X}_r$	$\overline{X}_m$	$\overline{X}_r$
1	19	12	22	14	13	12	23	8	20	8	21	5
2	19	24	18	24	14	24	13	23	12	19	17	21
3	27	23	30	26	21	22	23	22	18	25	24	22
4	27	34	22	28	29	23	21	27	24	21	27	24
5	24	22	20	15	23	24	16	17	16	16	15	18
6	20	16	17	13	17	14	14	12	15	12	13	13
7	31	9	29	8	37	8	28	10	18	9	--	7
8	21	24	21	23	28	21	15	18	15	18	14	16
9	22	20	24	20	20	23	20	21	20	18	20	18
10	16	27	22	22	22	22	31	25	23	20	31	21
11	19	26	18	26	17	30	--	24	--	22	--	22
12	12	30	15	26	10	26	12	25	11	25	13	23
13	18	12	18	13	14	16	19	11	19	10	14	14
14	28	17	29	16	24	16	13	13	13	14	15	11
15	26	18	21	24	25	22	22	17	21	21	21	20
16	21	25	21	26	21	22	22	24	21	23	19	25
17	27	30	22	29	26	30	19	28	15	28	15	29
18	15	27	16	25	13	22	15	26	16	26	12	24
19	30	16	27	15	35	17	27	10	31	13	30	10
20	19	18	22	16	21	16	--	13	--	13	15	14
21	--	22	--	22	--	22	--	18	--	19	--	20
22	17	25	13	23	13	20	--	21	--	19	--	20
23	22	22	23	20	22	24	15	22	13	18	9	20
24	26	27	22	26	24	27	25	25	27	22	26	23
25	23	29	21	27	23	27	--	25	--	21	--	21
26	28	27	20	29	23	29	19	24	20	19	23	26
27	30	27	26	28	28	28	24	26	23	23	23	26

Mean Ratings Made and Received on Two Administrations[1] of the Modified Syracuse Scales of Social Relations: Social Need Scales Succorance (Suc), Achievement Recognition (AR), and Playmirth (Play)

Class 5B (Retest Interval: 1 Week)

Pupils	Initial Test						Retest					
	Suc		AR		Play		Suc		AR		Play	
	$\overline{X}_m$	$\overline{X}_r$	$\overline{X}_m$	$\overline{X}_r$	$\overline{X}_m$	$\overline{X}_r$	$\overline{X}_m$	$\overline{X}_r$	$\overline{X}_m$	$\overline{X}_r$	$\overline{X}_m$	$\overline{X}_r$
1	23	17	24	17	27	19	--	16	--	17	--	17
2	28	15	36	16	40	17	36	13	38	15	40	14
3	21	21	20	20	22	20	19	17	19	20	18	20
4	19	10	16	7	17	10	11	11	14	8	10	10
5	5	13	4	11	3	11	1	8	2	11	1	10
6	37	16	37	14	35	16	37	17	35	11	36	13
7	14	25	15	24	17	24	17	21	17	19	19	21
8	19	13	20	7	24	17	16	10	18	8	21	11
9	26	17	24	16	36	18	40	14	27	17	26	20
10	21	17	16	12	20	14	16	15	16	11	17	10
11	19	22	21	24	19	25	--	22	--	20	--	22
12	11	15	10	15	9	17	7	16	7	13	8	16
13	26	20	21	18	24	22	24	19	18	17	23	20
14	16	26	13	26	17	25	19	24	14	25	17	26
15	13	17	19	20	12	17	13	16	10	17	12	17
16	21	15	22	17	25	17	22	14	21	16	25	15
17	10	25	17	28	19	25	14	24	12	23	15	22
18	11	18	9	20	8	23	11	19	7	23	14	21
19	12	24	10	23	15	23	12	23	11	23	11	23
20	15	28	14	32	19	32	16	29	22	31	20	31
21	18	24	15	27	17	21	15	23	13	24	11	26
22	17	20	15	19	15	18	--	17	--	18	--	19
23	39	19	31	17	27	18	25	15	28	14	30	19
24	22	12	20	11	14	10	15	11	14	9	17	8
25	--	18	--	15	--	18	14	15	20	13	20	15
26	23	22	15	19	16	26	16	21	16	21	17	23
27	13	31	21	31	14	30	14	30	19	28	15	29
28	21	17	22	17	18	17	15	16	19	18	13	15

Mean Ratings Made and Received on Two Administrations[1] of the Modified Syracuse Scales of Social Relations: Social Need Scales Succorance (Suc), Achievement Recognition (AR), and Playmirth (Play)

Class 4A (Retest Interval: 1 Week)

Pupils	Initial Test						Retest					
	Suc		AR		Play		Suc		AR		Play	
	$\bar{X}_m$	$\bar{X}_r$	$\bar{X}_m$	$\bar{X}_r$	$\bar{X}_m$	$\bar{X}_r$	$\bar{X}_m$	$\bar{X}_r$	$\bar{X}_m$	$\bar{X}_r$	$\bar{X}_m$	$\bar{X}_r$
1	--	16	--	9	--	10	--	8	--	5	--	6
2	25	24	25	24	22	24	24	19	20	20	22	23
3	26	22	23	18	24	17	17	19	14	14	12	15
4	19	15	23	13	22	17	21	13	21	13	25	10
5	10	29	13	24	10	22	8	20	9	19	12	19
6	17	21	12	20	11	23	13	20	6	21	13	22
7	21	25	19	23	21	21	23	17	22	18	21	19
8	25	26	27	24	21	23	23	20	21	23	18	27
9	37	19	37	17	39	18	--	17	--	16	--	17
10	24	24	26	20	25	20	27	19	24	15	25	12
11	26	29	27	26	21	21	23	24	23	21	25	18
12	20	18	16	15	13	14	20	13	20	13	18	9
13	27	18	19	17	16	14	17	17	16	14	15	12
14	17	28	16	33	18	26	19	29	17	29	17	26
15	17	14	18	13	11	10	13	8	12	6	10	8
16	34	24	29	23	33	23	28	22	25	24	27	19
17	13	27	13	23	11	20	8	22	8	22	5	22
18	23	18	20	19	15	16	15	13	16	11	11	10
19	14	21	19	20	11	19	12	16	16	16	14	13
20	18	24	20	22	17	19	16	19	14	16	13	16
21	24	15	25	16	24	16	26	12	28	13	31	11
22	17	22	11	21	12	21	16	19	12	19	12	16
23	--	29	--	26	--	27	16	28	21	20	11	23
24	19	28	19	31	19	27	16	24	13	27	14	23
25	16	16	14	12	12	13	13	13	13	9	12	12
26	21	29	20	28	19	27	--	25	--	25	--	23
27	38	18	31	16	28	14	19	14	18	11	24	11
28	24	14	21	18	22	18	22	15	21	13	20	14
29	23	19	20	22	25	17	18	18	28	17	20	20
30	--	32	--	35	--	28	16	30	10	31	12	26
31	29	22	28	22	26	18	22	18	21	18	21	20
32	27	30	21	32	20	29	23	25	21	28	24	27
33	19	19	18	10	16	9	15	10	9	6	3	7

Mean Ratings Made and Received on Two Administrations[1] of the Modified Syracuse Scales of Social Relations: Social Need Scales Succorance (Suc), Achievement Recognition (AR), and Playmirth (Play)

(Class 4B (Retest Interval: 1 Week)

Pupils	Initial Test						Retest					
	Suc		AR		Play		Suc		AR		Play	
	$\bar{X}_m$	$\bar{X}_r$	$\bar{X}_m$	$\bar{X}_r$	$\bar{X}_m$	$\bar{X}_r$	$\bar{X}_m$	$\bar{X}_r$	$\bar{X}_m$	$\bar{X}_r$	$\bar{X}_m$	$\bar{X}_r$
1	12	18	16	14	9	13	12	16	11	15	12	16
2	24	11	24	10	14	11	19	12	18	9	15	10
3	16	15	15	16	14	14	--	11	--	10	--	12
4	21	14	14	16	4	15	16	12	20	12	9	12
5	16	12	15	14	17	15	15	13	14	12	18	12
6	22	20	20	25	24	20	20	22	22	24	23	23
7	18	18	25	17	21	12	19	15	22	12	16	16
8	17	9	18	10	16	7	--	8	--	7	--	7
9	26	15	32	18	34	16	--	15	--	16	--	17
10	14	14	10	14	5	12	6	14	7	10	7	11
11	21	22	19	24	16	22	14	22	14	25	11	23
12	19	17	22	17	24	17	20	15	24	14	20	13
13	14	24	12	23	12	21	16	23	16	24	14	25
14	21	20	19	21	17	21	20	19	22	20	22	18
15	15	19	24	19	23	16	17	17	20	17	23	19
16	14	17	22	19	12	20	15	18	14	17	13	17
17	17	21	18	24	18	21	22	20	20	24	18	22
18	5	14	22	17	7	16	12	13	20	11	12	8
19	11	24	13	24	17	21	15	23	22	23	26	21
20	10	12	12	17	9	12	10	13	8	10	7	13
21	18	29	20	31	16	29	15	30	15	34	12	30
22	21	25	24	31	24	26	--	24	--	29	--	22
23	22	20	19	19	19	15	24	21	28	18	27	14
24	17	12	20	14	15	13	16	13	14	11	14	9
25	24	18	22	19	20	15	26	17	20	17	22	13
26	17	17	17	22	19	20	23	18	14	18	19	17
27	18	15	20	17	18	14	17	15	17	14	21	12
28	26	12	25	14	23	15	--	12	--	11	--	13
29	15	24	18	25	26	23	14	20	14	26	16	24
30	19	19	17	19	11	18	16	22	11	22	9	24
31	24	19	19	24	21	21	22	20	16	26	21	25
32	12	14	15	13	22	12	--	13	--	11	--	11

Mean Ratings Made and Received on Two Administrations[1] of the Modified Syracuse Scales of Social Relations: Social Need Scales Succorance (Suc), Achievement Recognition (AR), and Playmirth (Play)

Class 3A (Retest Interval: 1 Week)

Pupils	Initial Test						Retest					
	Suc		AR		Play		Suc		AR		Play	
	$\overline{X}_m$	$\overline{X}_r$	$\overline{X}_m$	$\overline{X}_r$	$\overline{X}_m$	$\overline{X}_r$	$\overline{X}_m$	$\overline{X}_r$	$\overline{X}_m$	$\overline{X}_r$	$\overline{X}_m$	$\overline{X}_r$
1	23	25	22	22	22	24	23	25	23	24	22	25
2	30	28	29	25	33	29	29	28	30	30	30	29
3	25	27	23	22	25	28	16	29	15	25	16	30
4	26	22	23	21	22	22	23	21	14	20	10	19
5	17	15	20	18	20	14	20	14	22	16	20	11
6	24	25	22	19	19	27	25	23	23	20	26	24
7	24	20	19	18	24	20	22	19	20	20	27	20
8	21	14	20	12	20	20	17	17	17	16	14	18
9	18	18	6	21	12	20	19	16	21	20	13	23
10	--	22	--	17	--	17	--	22	--	21	--	19
11	23	20	16	20	22	20	16	21	9	24	14	19
12	13	11	16	7	23	13	17	13	15	12	16	10
13	25	30	25	26	26	29	29	28	33	27	29	25
14	20	25	19	24	20	24	10	23	16	21	13	20
15	24	11	25	7	20	12	30	10	25	10	26	10
16	23	23	26	20	22	20	27	19	31	17	25	21
17	15	33	14	28	14	29	17	28	17	30	17	29
18	26	20	24	16	25	15	27	14	27	11	25	10
19	26	12	20	14	20	14	23	14	21	13	23	14
20	14	24	13	24	15	24	14	24	19	23	16	25
21	14	31	10	29	17	30	14	29	19	31	16	31
22	28	25	18	24	25	22	22	24	27	23	33	24
23	26	12	21	12	22	14	20	14	23	16	26	13
24	18	31	21	26	23	25	20	24	16	26	17	28

Mean Ratings Made and Received on Two Administrations[1] of the Modified Syracuse Scales of Social Relations: Social Need Scales Succorance (Suc), Achievement Recognition (AR), and Playmirth (Play)

Class 3B (Retest Interval: 1 Week)

Pupils	Initial Test						Retest					
	Suc		AR		Play		Suc		AR		Play	
	$\bar{X}_m$	$\bar{X}_r$	$\bar{X}_m$	$\bar{X}_r$	$\bar{X}_m$	$\bar{X}_r$	$\bar{X}_m$	$\bar{X}_r$	$\bar{X}_m$	$\bar{X}_r$	$\bar{X}_m$	$\bar{X}_r$
1	15	14	12	14	10	16	16	14	15	12	15	16
2	15	14	13	20	11	20	14	17	14	19	19	21
3	18	9	19	12	23	13	18	13	18	12	28	13
4	16	20	23	18	18	24	19	25	13	25	17	21
5	13	12	10	14	15	16	8	14	7	22	11	18
6	23	15	21	12	23	12	18	12	18	13	18	13
7	8	24	14	19	19	20	16	23	12	21	14	24
8	8	12	8	14	7	12	15	15	12	10	15	15
9	8	4	4	2	4	4	10	3	5	5	3	10
10	19	16	30	15	23	17	22	18	20	15	21	14
11	28	26	7	23	23	24	16	25	8	20	29	23
12	18	24	21	21	23	20	19	19	20	22	19	24
13	19	26	14	22	21	22	--	24	--	18	--	25
14	28	16	25	18	30	20	29	16	36	17	40	18
15	20	11	18	11	19	12	22	9	25	8	24	12
16	26	30	22	26	20	29	--	28	--	28	--	29
17	13	19	6	18	11	18	7	15	10	18	10	17
18	25	17	21	16	21	16	18	12	18	10	18	14
19	--	24	--	24	--	23	12	19	17	17	17	17
20	21	26	24	23	20	26	20	22	24	19	20	24
21	23	11	26	10	24	12	25	13	30	12	26	15
22	20	30	21	24	18	30	22	26	15	26	11	28

Mean Ratings Made and Received on Two Administrations[1] of the Modified Syracuse Scales of Social Relations: Social Need Scales Succorance (Suc), Achievement Recognition (AR), and Playmirth (Play)

Class 3C (Retest Interval: 1 Week)

Pupils	Initial Test						Retest					
	Suc		AR		Play		Suc		AR		Play	
	$\bar{X}_m$	$\bar{X}_r$	$\bar{X}_m$	$\bar{X}_r$	$\bar{X}_m$	$\bar{X}_r$	$\bar{X}_m$	$\bar{X}_r$	$\bar{X}_m$	$\bar{X}_r$	$\bar{X}_m$	$\bar{X}_r$
1	--	12	--	12	--	11	14	11	13	12	19	15
2	26	20	25	20	27	20	26	21	23	20	23	22
3	19	10	20	10	27	6	--	9	--	8	--	9
4	25	18	22	16	17	16	22	21	22	21	20	18
5	24	26	23	24	21	27	23	23	24	22	23	21
6	25	17	22	18	25	19	27	15	29	19	30	21
7	13	24	12	27	13	30	13	28	10	31	--	31
8	17	15	18	15	13	11	13	12	12	13	16	15
9	26	24	25	25	23	30	20	27	20	26	20	21
10	9	18	29	21	20	25	30	20	28	16	27	24
11	14	31	11	36	11	33	8	33	9	31	10	34
12	16	33	17	33	16	30	13	29	12	30	18	31
13	23	31	24	28	23	27	28	30	30	30	28	31
14	21	18	20	16	22	13	13	12	23	14	23	13
15	24	10	28	13	24	8	31	12	30	7	28	8
16	25	30	20	32	23	32	26	30	27	31	23	32
17	18	9	22	4	19	9	--	9	--	6	--	10
18	20	13	23	15	18	17	18	14	15	14	16	18
19	23	18	22	16	22	16	23	15	23	17	22	16
20	16	24	18	31	17	26	14	29	14	26	11	28
21	25	16	30	16	26	20	21	14	22	18	26	20
22	19	28	20	28	25	25	26	30	25	27	26	32
23	18	29	19	30	17	26	17	30	15	30	16	30
24	19	16	14	13	17	17	--	13	--	16	--	19
25	--	14	--	19	--	21	--	12	--	14	--	14
26	25	25	15	24	27	23	20	24	23	24	26	26
27	--	22	--	18	--	20	17	23	17	24	20	20

Mean Ratings Made and Received on Two Administrations[1] of the Modified Syracuse Scales of Social Relations: Social Need Scales Succorance (Suc), Achievement Recognition (AR), and Playmirth (Play)

Class 3D (Retest Interval: 1 Week)

Pupils	Initial Test						Retest					
	Suc		AR		Play		Suc		AR		Play	
	$\bar{X}_m$	$\bar{X}_r$	$\bar{X}_m$	$\bar{X}_r$	$\bar{X}_m$	$\bar{X}_r$	$\bar{X}_m$	$\bar{X}_r$	$\bar{X}_m$	$\bar{X}_r$	$\bar{X}_m$	$\bar{X}_r$
1	--	22	--	22	--	26	10	26	8	29	10	27
2	11	23	14	21	16	16	17	15	16	15	14	15
3	26	16	24	16	17	20	13	21	14	24	15	23
4	24	26	20	30	21	30	24	27	21	29	23	26
5	14	6	17	10	23	7	21	7	18	7	20	7
6	24	20	20	19	22	15	22	12	24	12	24	10
7	10	13	15	11	14	12	13	10	13	10	12	13
8	24	22	26	18	26	16	26	13	26	16	15	13
9	--	13	--	10	--	20	18	19	17	16	11	19
10	--	21	--	18	--	11	22	15	20	10	27	13
11	29	16	22	13	20	20	16	22	16	19	15	23
12	24	22	22	24	26	23	21	22	18	16	21	19
13	17	31	16	32	18	33	21	32	17	32	14	30
14	21	31	22	30	22	27	23	30	22	28	20	26
15	20	16	26	15	18	16	24	13	25	16	17	15
16	18	18	19	21	15	20	16	17	16	18	16	15
17	16	29	14	34	18	29	20	33	12	34	14	33
18	27	27	27	29	26	21	28	20	27	24	28	20
19	20	23	23	23	24	25	17	25	20	23	19	25
20	20	23	21	22	20	17	--	20	--	19	--	19
21	18	14	17	17	10	16	14	19	18	12	14	17
22	22	20	16	19	20	21	20	20	21	19	20	19
23	21	14	17	17	24	14	16	18	16	12	19	13
24	26	19	25	19	26	23	28	23	24	18	26	18
25	22	18	33	23	27	26	31	20	31	22	31	23
26	17	23	17	20	13	25	15	20	15	18	16	19
27	16	20	19	24	16	15	14	19	16	19	19	16
28	--	20	--	17	--	14	28	18	27	20	30	15

Mean Ratings Made and Received on Two Administrations[1] of the Modified Syracuse Scales of Social Relations: Social Need Scales Succorance (Suc), Achievement Recognition (AR), and Playmirth (Play)

Class 3E (Retest Interval: 1 Week)

Pupils	Initial Test				Retest			
	Suc		AR		Suc		AR	
	$\bar{X}_m$	$\bar{X}_r$	$\bar{X}_m$	$\bar{X}_r$	$\bar{X}_m$	$\bar{X}_r$	$\bar{X}_m$	$\bar{X}_r$
1	22	25	28	22	19	19	21	20
2	16	16	18	17	20	13	21	12
3	26	13	21	17	18	16	16	12
4	22	20	21	20	22	20	21	19
5	20	23	16	22	18	25	15	25
6	19	14	19	13	12	8	12	12
7	24	13	28	8	25	15	20	15
8	19	20	20	19	21	16	23	18
9	14	18	21	19	23	11	25	14
10	25	27	28	26	26	20	23	19
11	17	14	18	12	21	15	25	13
12	--	7	--	8	--	5	--	6
13	22	29	19	29	18	25	16	27
14	27	20	28	19	28	16	27	14
15	14	27	13	25	18	23	14	22
16	24	22	27	24	--	26	--	24
17	--	21	--	20	--	16	--	19
18	19	31	19	29	16	27	20	31
19	21	24	21	27	21	21	22	22
20	18	19	18	23	16	19	16	18
21	26	26	29	26	18	23	18	23
22	23	20	17	23	23	20	18	19
23	22	13	22	14	9	11	11	9
24	16	30	15	29	12	25	13	25
25	19	29	22	28	20	24	19	24
26	9	26	9	24	1	25	7	22
27	18	22	25	22	19	20	20	20
28	30	20	28	17	26	20	25	16
29	22	26	13	24	21	27	19	21
30	25	22	25	24	23	21	16	22
31	20	11	22	14	--	16	--	14
32	22	11	16	15	12	8	17	7
33	25	30	16	29	21	25	18	25

Note: Social need scale playmirth was not administered in Classes 3E and 3F.

Mean Ratings Made and Received on Two Administrations[1] of the Modified Syracuse Scales of Social Relations: Social Need Scales Succorance (Suc), Achievement Recognition (AR), and Playmirth (Play)

Class 3F (Retest Interval: 1 Week)

Pupils	Initial Test				Retest			
	Suc		AR		Suc		AR	
	$\bar{X}_m$	$\bar{X}_r$	$\bar{X}_m$	$\bar{X}_r$	$\bar{X}_m$	$\bar{X}_r$	$\bar{X}_m$	$\bar{X}_r$
1	16	20	18	24	16	16	13	20
2	20	25	11	21	9	19	10	22
3	19	11	16	11	19	10	22	6
4	23	9	22	13	11	12	12	13
5	26	17	28	12	21	11	9	10
6	14	15	12	16	20	11	22	14
7	20	17	21	15	15	13	19	11
8	16	20	10	17	17	18	18	17
9	18	24	26	20	21	23	18	23
10	25	27	20	27	26	21	26	23
11	9	15	8	21	10	11	9	16
12	18	19	15	18	13	14	18	12
13	20	18	23	17	24	12	21	10
14	18	5	21	8	16	5	14	7
15	16	16	16	13	12	13	12	11
16	7	26	9	20	6	17	17	16
17	23	25	20	18	16	21	10	19
18	10	30	12	32	9	29	10	33
19	25	5	--	5	16	4	--	5
20	22	23	19	22	10	16	10	19
21	24	29	24	30	13	26	14	25
22	21	12	21	12	17	9	17	10
23	19	14	10	15	12	12	12	14
24	31	19	23	14	25	15	25	13
25	32	12	27	11	17	11	21	9
26	14	30	10	28	7	29	9	27
27	12	20	15	15	12	13	8	13
28	11	25	8	26	8	22	8	24
29	19	17	18	17	20	16	17	17
30	22	17	22	10	23	12	25	16
31	--	19	--	20	10	18	20	19
32	14	11	16	9	10	6	10	6
33	10	17	14	16	15	15	20	12

Note: Social need scale playmirth was not administered in Classes 3E and 3F.

Mean Ratings Made and Received on Two Administrations[1] of the Modified Syracuse Scales of Social Relations: Social Need Scales Succorance (Suc), Achievement Recognition (AR), and Playmirth (Play)

Class SpC (Retest Interval: 1 Week)

Pupils	Initial Test						Retest					
	Suc		AR		Play		Suc		AR		Play	
	$\overline{X}_m$	$\overline{X}_r$	$\overline{X}_m$	$\overline{X}_r$	$\overline{X}_m$	$\overline{X}_r$	$\overline{X}_m$	$\overline{X}_r$	$\overline{X}_m$	$\overline{X}_r$	$\overline{X}_m$	$\overline{X}_r$
1	16	19	18	15	20	19	20	13	14	17	20	16
2	21	16	24	21	24	14	21	14	16	16	21	17
3	--	12	--	8	--	24	--	14	--	10	--	16
4	19	26	18	24	23	20	16	23	18	24	18	23
5	20	11	11	12	18	20	16	14	16	10	11	18
6	15	19	14	21	18	24	25	22	10	20	15	27
7	--	23	--	18	--	24	--	17	--	12	--	12
8	19	23	15	17	14	24	19	25	14	24	11	20
9	24	9	22	10	28	17	28	9	30	15	28	8
10	--	21	--	15	--	27	--	23	--	17	--	18
11	14	9	11	13	18	13	13	20	20	13	25	16
12	24	22	25	26	28	20	27	24	24	22	24	20
13	14	14	18	14	23	18	18	9	16	5	17	12
14	16	24	23	24	23	23	12	24	21	21	26	24
15	11	16	11	27	11	22	1	21	2	24	1	25

Mean Ratings Made and Received on Two Administrations[1] of the Modified Syracuse Scales of Social Relations: Social Need Scales Succorance (Suc), Achievement Recognition (AR), and Playmirth (Play)

Class SpD (Retest Interval: 1 Week)

Pupils	Initial Test						Retest					
	Suc		AR		Play		Suc		AR		Play	
	$\overline{X}_m$	$\overline{X}_r$	$\overline{X}_m$	$\overline{X}_r$	$\overline{X}_m$	$\overline{X}_r$	$\overline{X}_m$	$\overline{X}_r$	$\overline{X}_m$	$\overline{X}_r$	$\overline{X}_m$	$\overline{X}_r$
1	25	18	23	9	23	8	22	23	23	12	20	15
2	18	23	20	19	26	18	19	27	20	16	18	14
3	27	20	22	17	26	22	24	14	12	16	25	18
4	14	19	8	23	9	20	20	32	12	22	8	25
5	16	24	12	19	12	14	18	19	16	14	17	16
6	--	14	--	17	--	15	--	16	--	11	--	10
7	25	23	28	12	17	18	32	19	27	20	23	14
8	23	15	15	18	8	16	20	18	4	23	4	19
9	19	29	15	24	18	23	19	24	20	18	18	20
10	25	24	22	21	19	19	20	22	22	18	22	15
11	19	23	15	24	15	16	13	19	9	15	8	14
12	29	25	22	20	22	24	31	28	25	27	28	26
13	20	24	19	17	20	18	25	26	25	21	20	20

Class SpE (Retest Interval: 1 Week)

1	20	24	20	28	23	28	18	24	18	26	18	38
2	32	22	28	16	23	24	32	28	22	20	18	22
3	--	13	--	17	--	10	--	17	--	13	--	10
4	20	20	22	18	15	16	22	14	20	12	25	14
5	12	18	15	16	8	6	18	12	17	10	17	14
6	20	22	20	30	22	24	20	30	20	24	25	22
7	17	22	17	18	17	24	17	24	15	26	15	20

APPENDIX E

Scale Positions Used by Pupils in Evaluating Classmates on Initial and Retest Administrations of the Parsons Modification[2] of the Syracuse Scales of Social Relations: Social Need Scales Succorance, Achievement Recognition, and Playmirth

Note: All entries are percentages of N-1 ratings made by the pupil where N = number of classmates.

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[1] These frequencies are summarized in Table 4.4.

[2] Both administrations in Classes 3A and 3B and the retest administrations for Classes 6C and 5A used an "all persons known" reference frame instruction. The finalized scales modification using the "all children known" reference frame instruction was used for all other administrations. Social need scale playmirth was not administered in Classes 3E and 3F.

Class 6_C (Initial Test)

Pupil	Need Succorance					Need Achievement Recognition					Need Playmirth				
	Least	Bet.	Mid.	Bet.	Most	Least	Bet.	Mid.	Bet.	Most	Least	Bet.	Mid.	Bet.	Most
1	45	32	16	3	3	52	22	13	13	0	48	23	3	26	0
2	29	22	22	13	13	6	26	26	32	10	19	23	32	13	13
3	26	42	22	10	0	10	35	35	13	3	19	32	19	23	6
4	13	42	26	39	16	29	29	23	3	16	23	29	26	3	19
5	0	0	55	39	6	0	29	26	26	19	0	13	61	19	6
6	19	39	16	16	10	29	26	10	19	16	29	32	16	16	6
7	6	65	26	0	3	6	65	23	6	0	16	55	3	19	6
8	3	19	22	45	10	16	16	23	19	26	6	16	10	42	26
9	39	32	10	6	13	32	35	16	6	10	55	19	16	3	6
10	3	58	16	3	19	0	3	3	39	55					
11	35	32	22	10	0	19	29	19	16	16	29	29	19	6	16
12	74	16	3	6	0	3	32	45	16	3	32	35	26	3	3
13	29	29	29	10	3	29	32	26	10	3	23	26	23	19	10
14	61	22	0	16	0	42	45	3	6	3	32	35	22	0	10
15	19	22	32	16	10	23	26	26	10	26	35	26	23	10	6
16	19	6	26	13	35	6	10	26	26	32	6	10	6	42	35
17	74	10	10	3	3	35	26	16	19	3	32	19	16	19	13
18															
19	13	52	22	12	0	16	32	26	22	3	10	39	22	22	6
20	35	26	26	12	0	22	29	16	22	10	29	10	16	19	26
21	26	32	20	10	12	32	26	6	19	16	51	10	13	10	16
22	3	3	23	16	55	6	16	32	3	42	16	6	0	26	52
23	55	26	10	6	3	58	22	3	13	3	52	19	13	13	3
24	22	29	10	23	16	19	26	22	16	16	19	16	26	16	23
25	35	13	29	10	13	29	22	13	3	32	42	10	19	6	23
26						29	16	16	19	19	19	13	16	23	29
27	0	13	58	16	13	0	0	32	42	26	0	3	38	38	20
28	42	35	10	10	3	19	32	35	10	3	45	26	16	6	6
29	29	29	6	19	16	19	22	25	19	13	23	29	13	19	16
30	29	29	16	13	13	25	25	19	16	13	23	32	23	19	3
31	10	19	39	19	13	19	22	13	19	26	35	16	3	10	35
32	16	26	16	29	13	22	13	22	22	19	26	10	16	16	32

Class 6_C (Retest)

Pupil	Need Succorance					Need Achievement Recognition					Need Playmirth				
	Least	Bet.	Mid.	Bet.	Most	Least	Bet.	Mid.	Bet.	Most	Least	Bet.	Mid.	Bet.	Most
1	71	16	13	0	0	52	22	22	3	0	58	35	3	0	3
2	13	19	48	13	6	13	32	26	22	6	19	35	22	6	16
3	22	45	19	13	0	16	42	29	13	0	13	39	29	16	3
4	10	29	26	29	6	10	35	26	16	13	13	32	13	6	35
5	3	10	55	29	3	3	39	32	16	10	19	19	32	16	13
6	39	42	16	3	0	6	84	10	0	0	6	94	0	0	0
7	6	81	6	3	3	6	81	3	6	3	3	84	3	3	6
8	6	29	13	32	19	6	19	22	26	26	3	22	29	26	19
9	61	19	10	10	0	61	26	6	6	0	68	16	6	10	0
10	10	58	32	0	0	6	55	39	0	0	3	3	87	6	0
11	58	26	16	0	0	42	19	26	13	0	39	26	19	13	3
12	48	32	19	0	0	16	32	35	6	10	19	39	16	6	19
13	29	52	16	3	0	22	58	19	0	0	16	48	29	3	3
14	39	39	3	13	6	39	39	3	13	6	39	19	26	3	13
15	35	35	6	13	10	35	35	6	13	10	35	32	22	6	3
16	19	10	19	39	13	19	10	19	39	13	6	13	13	42	26
17	32	29	22	10	6	26	32	22	16	3	29	35	16	10	10
18	29	19	29	22	0	22	19	29	6	22	13	6	29	13	39
19	19	68	13	0	0	19	48	29	3	0	19	45	29	3	3
20	35	26	22	16	0	32	16	26	22	3	29	22	32	13	3
21	16	58	22	3	0	6	61	26	6	0	3	74	19	0	3
22	6	16	42	13	22	13	6	35	6	39	16	6	35	13	29
23	45	22	13	16	3	45	26	3	19	6	42	6	10	22	19
24	32	33	32	3	0	16	26	35	19	3	26	29	26	10	10
25	3	77	19	0	0	100	0	0	0	0	3	74	13	6	3
26	16	26	26	6	26	16	19	29	13	22	16	29	19	10	26
27	6	45	22	16	10	0	10	39	35	16	0	0	45	26	29
28	45	29	13	10	3	42	42	13	3	0	35	19	22	16	6
29	29	26	10	16	19	16	32	16	19	16	26	39	6	6	22
30	19	39	10	10	3	16	32	29	22	0	13	45	16	26	0
31	39	3	29	3	35	52	6	16	0	26	45	3	6	6	39
32	55	26	16	3	0	42	10	29	10	10	35	19	19	22	3

Class 6_F (Initial Test)

Pupil	Need Succorance					Need Achievement Recognition					Need Playmirth				
	Least	Bet.	Mid.	Bet.	Most	Least	Bet.	Mid.	Bet.	Most	Least	Bet.	Mid.	Bet.	Most
1															
2	40	40	10	3	7	30	43	17	7	3	43	37	10	3	7
3	43	27	20	3	7	56	23	7	7	7	50	17	13	10	10
4	57	20	6	0	17	63	10	7	3	17	63	7	10	0	20
5	27	27	30	13	3	3	27	37	30	3	17	33	30	13	7
6	63	7	13	10	7	30	33	13	13	10	40	27	20	3	10
7	13	27	27	20	13	13	33	33	10	10	10	40	17	10	23
8															
9															
10	20	30	20	20	10	7	13	23	37	20	10	20	40	10	20
11	23	20	27	10	20	17	17	23	20	23	23	20	17	17	23
12	57	17	20	3	3	57	23	10	7	3	50	37	7	3	3
13															
14	17	27	20	23	13	10	23	33	17	17	20	26	30	17	7
15	27	40	13	13	7	40	20	26	7	7	17	33	24	13	13
16	70	17	3	7	3	10	47	23	10	10	17	67	10	6	0
17	3	23	67	7	0	27	23	20	13	17	13	30	27	7	23
18	13	33	23	13	17	0	47	23	10	20	0	40	23	17	20
19	50	33	7	7	3	36	17	13	17	17	37	20	17	13	13
20	0	37	43	0	20	3	63	13	0	20	3	0	77	0	20
21	17	27	36	10	10	33	0	0	10	57	50	3	47	0	0
22	33	43	17	3	3	57	17	20	6	0	60	17	23	0	0
23	3	3	20	47	27	17	23	7	30	23	0	13	37	37	13
24	27	40	30	3	0	13	33	47	7	0	17	37	30	13	3
25	17	47	27	6	3	27	43	23	7	0	17	50	20	7	6
26	7	37	30	16	10	33	30	27	0	10	30	33	13	13	10
27	30	37	13	7	13	47	17	10	6	20	33	7	27	13	20
28	50	10	20	0	20	40	20	10	7	23	40	13	7	3	37
29	40	17	20	13	10	20	33	27	13	7	43	10	30	7	10
30	7	30	40	20	3	0	23	40	23	13	37	20	17	20	6
31	47	20	17	16	0	47	7	23	20	3	40	13	17	23	7

Class 6_F (Retest)

Pupil	Need Succorance					Need Achievement Recognition					Need Playmirth				
	Least	Bet.	Mid.	Bet.	Most	Least	Bet.	Mid.	Bet.	Most	Least	Bet.	Mid.	Bet.	Most
1	13	34	23	23	7	20	27	20	23	10	40	20	17	20	3
2	40	33	17	7	3	17	43	20	13	7	44	33	7	13	3
3	56	17	7	10	10	54	13	13	10	10	57	10	10	10	13
4	70	10	3	14	3	70	13	3	7	7	56	17	13	7	7
5	7	26	43	17	7	3	20	37	30	10	3	27	40	20	10
6	40	26	7	17	10	20	37	10	23	10	44	20	13	10	13
7	16	43	17	7	17	17	40	20	3	20	13	48	13	3	23
8	43	16	7	17	17	33	30	7	13	17	56	7	3	27	7
9	3	23	34	33	7	10	20	20	33	17	17	30	23	20	10
10	3	17	27	43	10	7	23	47	17	7	7	30	43	17	3
11	13	27	10	30	20	30	23	24	10	13	34	13	30	13	10
12	43	33	17	7	0	46	30	10	7	7	50	23	17	10	0
13	7	20	23	33	17	17	26	17	23	17	23	34	17	13	13
14	17	33	27	20	3	20	27	33	20	0	17	23	23	27	10
15	0	20	53	17	10	13	37	30	10	10	7	43	40	3	7
16	13	57	13	10	7	14	13	50	20	3	13	46	27	7	7
17	3	33	30	7	27	7	34	23	13	23	3	40	20	13	24
18	30	23	24	3	20	27	23	20	10	20	23	33	20	7	17
19	40	20	10	13	17	33	7	27	10	23	40	10	10	20	20
20	3	13	64	3	17	0	10	63	10	17	0	0	73	10	17
21	27	0	3	20	50	36	3	37	7	17	44	10	30	3	13
22	47	30	10	10	3	70	7	20	0	3	63	7	23	0	7
23	3	17	47	30	3	34	13	20	20	13	10	27	17	36	10
24	17	40	37	3	3	17	47	23	10	3	33	17	33	17	0
25	13	37	30	13	7	10	23	43	17	7	13	27	44	13	3
26	23	27	20	10	20	43	20	20	10	7	43	17	10	7	23
27	44	20	13	10	13	46	10	10	17	17	53	17	13	10	7
28	33	17	10	20	20	36	20	10	17	17	40	17	10	3	30
29	30	20	33	7	10	33	17	20	17	13	27	23	17	20	13
30	3	27	23	30	17	10	23	33	17	17	13	30	17	33	7
31	30	20	20	23	7	37	17	10	23	13	33	17	17	20	13

Class 5_A (Initial Test)

Pupil	Need Succorance					Need Achievement Recognition					Need Playmirth				
	Least	Bet.	Mid.	Bet.	Most	Least	Bet.	Mid.	Bet.	Most	Least	Bet.	Mid.	Bet.	Most
1	31	19	8	15	27	12	23	19	23	23	54	15	0	12	19
2	0	35	38	27	0	8	42	23	19	8	15	46	23	12	1
3	4	15	15	35	31	4	12	12	23	50	27	19	4	15	35
4	0	19	19	31	31	12	19	23	35	12	4	8	19	35	35
5	8	19	23	23	27	12	31	23	19	15	8	19	35	12	27
6	8	27	35	19	12	12	42	23	12	12	12	42	19	15	12
7	0	12	19	19	50	0	15	31	4	50	0	0	4	19	77
8	0	35	31	23	12	0	35	31	23	12	0	8	27	46	19
9	15	8	46	8	23	12	12	31	19	27	12	31	19	23	15
10	27	23	27	4	19	8	27	23	19	23	12	23	27	12	27
11	27	15	27	0	31	31	23	15	0	31	27	19	31	0	23
12	23	50	15	8	4	23	27	27	19	4	31	50	12	4	4
13	12	23	46	12	8	27	19	23	8	23	38	12	23	27	0
14	0	27	12	19	42	0	19	12	31	38	0	31	27	12	31
15	0	12	38	23	27	8	15	42	27	8	4	4	42	42	8
16	4	23	35	35	4	12	19	35	19	15	15	12	31	31	12
17	0	15	38	8	38	0	27	31	35	8	4	12	27	31	27
18	12	46	31	8	4	12	38	35	11	4	23	42	23	8	4
19	4	8	12	42	35	0	12	38	15	35	4	0	0	35	62
20	27	12	31	4	27	0	42	19	12	27	0	50	15	8	27
21															
22	19	27	31	12	12	19	38	35	8	0	15	42	35	8	0
23	4	19	38	27	12	8	12	38	23	19	15	15	23	23	23
24	15	12	12	23	38	4	31	23	27	15	8	23	19	23	27
25	12	15	31	19	23	23	12	19	23	23	0	4	62	35	0
26	0	12	23	42	23	8	12	58	15	8	8	0	38	42	4
27	0	0	38	27	35	0	4	54	15	27	0	8	42	8	42

Class 5_A (Retest)

Pupil	Need Succorance					Need Achievement Recognition					Need Playmirth				
	Least	Bet.	Mid.	Bet.	Most	Least	Bet.	Mid.	Bet.	Most	Least	Bet.	Mid.	Bet.	Most
1	8	23	27	19	23	19	19	23	23	15	12	27	23	19	19
2	15	50	31	0	4	15	62	15	4	4	0	42	42	15	0
3	8	15	35	23	19	19	31	15	23	12	12	23	15	12	38
4	4	35	23	23	15	0	27	27	27	19	0	27	12	23	38
5	19	38	19	8	15	12	50	15	8	15	15	50	19	4	12
6	19	38	27	15	0	19	46	12	15	8	23	42	19	8	8
7	4	15	15	31	35	15	19	31	35	0					
8	8	54	19	15	4	0	62	27	12	0	23	38	23	8	8
9	12	23	31	19	15	8	23	46	8	15	4	31	46	4	15
10	0	0	0	88	12	0	0	69	31	0	4	0	4	65	27
11															
12	23	42	27	8	0	31	42	15	12	0	19	42	27	8	4
13	12	8	62	19	0	4	12	73	12	0	8	50	38	4	0
14	12	46	38	4	0	27	42	12	15	4	19	35	31	12	4
15	4	19	35	35	8	4	15	54	19	8	8	15	42	31	4
16	4	23	31	31	12	4	15	54	19	8	8	19	54	12	8
17	8	23	42	27	0	15	38	31	15	0	15	35	31	19	0
18	12	38	38	8	4	15	31	31	23	0	23	42	27	4	4
19	4	27	0	15	50	4	15	4	23	54	12	12	4	12	62
20															
21															
22															
23	23	35	12	27	4	15	50	19	15	0	54	19	12	12	4
24	12	12	19	31	27	4	12	31	19	35	12	12	19	23	35
25															
26	19	8	38	35	0	4	19	54	23	0	8	15	19	54	4
27	0	4	50	46	0	4	23	35	19	19	4	27	27	23	19

Class 5_B (Initial Test)

	Need Succorance					Need Achievement Recognition					Need Playmirth				
Pupil	Least	Bet.	Mid.	Bet.	Most	Least	Bet.	Mid.	Bet.	Most	Least	Bet.	Mid.	Bet.	Most
1	0	37	15	33	15	4	33	7	26	30	0	18	22	30	30
2	11	4	11	41	33	4	0	7	15	74	0	0	0	0	100
3	7	30	18	37	7	11	30	30	11	18	11	22	22	22	22
4	30	7	18	37	7	30	22	18	18	11	48	0	11	11	30
5	52	48	0	0	0	63	37	0	0	0	74	26	0	0	0
6	0	0	7	11	81	4	0	0	18	78	7	0	4	15	74
7	30	33	18	7	11	22	37	18	15	7	18	33	26	4	18
8	33	15	11	15	26	37	11	3	11	37	22	11	15	11	41
9	0	15	18	59	7	4	11	33	48	4	0	0	4	37	59
10	18	15	26	18	22	30	18	26	11	15	18	22	18	15	26
11	11	26	30	26	7	4	33	22	33	7	7	37	22	18	15
12	48	11	26	11	4	41	26	22	11	0	48	22	22	4	4
13	4	22	15	30	30	18	15	18	30	18	4	26	26	11	33
14	18	30	33	15	4	37	11	37	11	4	30	33	7	0	30
15	33	15	44	0	7	7	33	37	11	11	56	7	11	11	15
16	22	15	22	15	26	15	22	22	11	30	11	18	15	18	37
17	44	26	15	11	4	18	33	18	15	15	18	30	11	26	15
18	52	22	7	4	15	63	15	4	7	11	63	22	0	0	15
19	44	18	18	7	11	41	33	15	7	4	7	44	37	4	7
20	11	52	15	22	0	15	52	18	11	4	15	33	26	0	26
21	15	33	22	18	11	22	26	33	15	4	26	18	26	18	11
22	37	11	18	7	26	63	0	0	0	37	59	4	0	0	37
23	0	7	0	0	92	0	4	18	37	41	22	0	0	11	37
24	15	22	18	15	30	11	30	18	30	11	41	11	15	30	4
25															
26	0	30	37	11	22	33	18	26	7	15	33	22	22	18	18
27	18	48	30	4	4	7	18	33	33	7	26	30	22	4	4
28	0	18	56	26	0	0	18	11	37	4	0	59	7	4	4

Class 5_B (Retest)

Pupil	Need Succorance					Need Achievement Recognition					Need Playmirth				
	Least	Bet.	Mid.	Bet.	Most	Least	Bet.	Mid.	Bet.	Most	Least	Bet.	Mid.	Bet.	Most
1															
2	4	0	0	22	14	0	0	4	15	81	0	0	0	0	100
3	15	19	33	26	7	22	15	30	18	15	15	26	30	22	7
4	45	26	15	7	7	37	22	19	11	11	37	45	7	0	11
5	85	15	0	0	0	81	19	0	0	0	85	15	0	0	0
6	4	0	0	18	78	4	0	11	11	74	04	0	7	15	74
7	15	37	26	4	18	15	41	18	15	11	15	37	19	7	22
8	37	22	11	8	22	41	7	11	11	30	33	11	7	4	45
9	0	0	0	0	100	4	7	22	52	15	0	11	33	45	11
10	41	15	11	11	22	52	0	11	7	30	33	22	8	11	26
11															
12	67	15	7	7	4	56	18	22	4	0	52	30	11	0	7
13	11	18	15	26	30	19	22	26	26	7	15	26	7	15	37
14	19	18	30	18	15	33	30	18	4	15	26	33	11	8	22
15	37	22	26	4	11	52	15	19	7	7	48	11	26	0	15
16	15	18	26	15	26	18	22	15	15	30	15	18	15	4	48
17	37	22	15	11	15	30	41	15	7	7	30	22	26	15	7
18	59	7	11	4	19	67	15	7	0	11	59	4	4	0	33
19	22	49	22	4	4	33	37	22	4	4	37	29	26	4	4
20	11	49	22	11	7	4	19	48	11	18	7	26	41	7	19
21	19	37	26	11	7	19	48	22	4	7	33	37	19	4	7
22															
23	11	7	33	19	30	15	0	7	45	33	0	4	33	22	41
24	41	15	15	15	14	31	19	7	26	7	41	7	11	19	22
25	15	48	26	0	11	19	33	4	22	22	18	22	30	4	26
26	37	15	22	7	19	30	22	22	11	15	26	18	30	15	11
27	26	30	29	11	4	15	11	44	26	4	26	26	26	18	4
28	0	63	22	15	0	4	59	0	22	15	63	0	0	15	22

Class 4_A (Initial Test)

Pupil	Need Succorance					Need Achievement Recognition					Need Playmirth				
	Least	Bet.	Mid.	Bet.	Most	Least	Bet.	Mid.	Bet.	Most	Least	Bet.	Mid.	Bet.	Most
1															
2	12	16	16	22	34	9	19	19	22	31	16	22	12	31	19
3	9	16	22	25	31	22	12	9	25	31	6	9	44	19	22
4	22	19	22	22	16	16	19	16	25	25	25	16	9	16	34
5	56	16	6	12	9	38	28	16	9	9	59	12	9	9	9
6	34	16	12	25	12	47	16	16	12	9	59	6	12	9	12
7	9	28	28	16	19	12	28	28	19	12	9	34	12	22	22
8	0	19	31	28	22	3	3	34	44	17	3	34	28	16	19
9	0	6	3	9	81	3	0	6	3	88	0	0	3	3	94
10	9	12	22	38	19	16	9	12	25	38	16	19	9	9	47
11	3	25	16	19	38	6	19	12	28	34	12	34	17	3	34
12	16	19	34	12	19	19	31	28	12	9	34	25	22	16	3
13	0	0	41	47	12	0	38	41	12	9	0	50	41	6	3
14	19	28	22	25	6	9	41	31	16	3	12	31	25	22	9
15	12	41	22	19	6	6	44	22	25	3	31	34	25	9	0
16	3	0	9	25	62	3	3	22	47	25	0	0	16	41	42
17	28	31	28	9	3	19	41	31	6	3	31	41	16	9	3
18	16	16	9	44	16	19	22	19	22	19	25	31	25	6	12
19	31	22	25	16	6	9	34	22	25	9	44	25	19	6	6
20	31	25	6	12	25	17	38	6	9	31	38	22	6	6	28
21	6	16	28	28	22	3	16	31	25	25	16	6	28	22	28
22	16	38	16	28	3	53	9	16	19	3	53	6	12	25	3
23															
24	22	25	16	19	19	22	28	12	16	22	19	19	25	31	6
25	25	19	31	19	6	41	6	31	12	9	50	9	25	6	9
26	6	25	38	16	16	9	31	31	6	22	22	22	22	9	25
27	0	0	0	22	78	6	6	9	28	50	3	16	9	38	34
28	19	6	22	19	34	34	6	9	19	31	31	9	6	12	41
29	31	3	9	19	38	44	3	6	3	44	19	9	19	6	47
30															
31	0	12	22	28	38	0	16	28	22	34	0	16	31	34	19
32	9	12	22	25	31	16	22	25	16	22	16	19	31	16	19
33	28	12	19	22	19	38	6	9	31	16	44	6	9	28	12

Class 4_A (Retest)

	Need Succorance					Need Achievement Recognition					Need Playmirth				
Pupils	Least	Bet.	Mid.	Bet.	Most	Least	Bet.	Mid.	Bet.	Most	Least	Bet.	Mid.	Bet.	Most
1															
2	16	19	12	16	38	25	19	9	25	22	16	22	12	22	28
3	44	9	9	6	31	50	12	6	12	19	62	3	3	9	22
4	25	16	12	16	31	25	16	12	16	31	19	12	12	16	41
5	62	16	6	9	6	53	19	16	6	6	38	34	6	16	6
6	47	9	19	19	6	69	6	19	6	0	50	9	12	16	12
7	12	22	16	19	31	25	16	9	19	31	34	3	16	16	31
8	3	9	53	25	9	3	28	38	22	9	6	44	25	12	12
9															
10	19	0	12	28	41	22	6	9	34	28	12	12	16	28	31
11	0	34	28	12	25	6	28	22	12	31	0	34	19	9	38
12	9	28	28	25	9	12	31	22	12	22	12	25	41	16	6
13	3	41	47	6	3	16	34	34	9	6	6	50	38	3	3
14	6	31	34	25	3	6	50	19	17	9	19	34	19	19	9
15	16	53	19	6	6	22	47	25	0	6	47	28	16	0	9
16	0	0	38	47	16	6	6	34	38	16	9	0	19	59	12
17	44	41	12	3	0	53	25	19	0	0	69	19	6	6	0
18	6	47	41	0	6	22	34	19	12	12	41	28	22	3	6
19	31	34	22	6	6	12	38	31	12	6	25	31	25	16	3
20	53	3	3	9	31	50	12	9	6	22	56	12	3	3	25
21	6	12	25	25	31	6	16	6	38	34	3	12	3	38	44
22	12	50	6	25	6	47	12	19	16	6	44	22	6	22	6
23	6	44	38	12	0	0	19	53	28	0	19	62	12	3	3
24	22	25	28	22	3	38	19	28	9	6	25	34	22	9	9
25	44	12	22	9	12	41	16	25	12	6	38	28	16	9	9
26															
27	41	6	3	25	25	44	3	3	25	25	28	6	6	12	47
28	34	3	9	16	38	31	9	9	16	34	41	0	12	9	38
29	47	6	0	9	38	12	0	22	25	41	31	19	6	9	34
30	19	25	41	12	3	34	38	25	0	3	28	41	22	3	6
31	16	19	19	22	25	28	16	9	16	31	34	9	3	19	34
32	16	19	19	12	34	6	12	50	25	6	9	16	28	16	31
33	44	6	16	22	12	69	6	6	6	12	91	3	0	0	6

Class 4_B (Initial Test)

	Need Succorance					Need Achievement Recognition					Need Playmirth				
Pupil	Least	Bet.	Mid.	Bet.	Most	Least	Bet.	Mid.	Bet.	Most	Least	Bet.	Mid.	Bet.	Most
1						16	29	29	19	6	16	26	13	10	3
2	39	26	16	10	10	6	16	32	26	19	39	22	10	22	6
3	0	22	29	35	13	19	39	16	19	6	26	29	32	10	3
4	19	19	45	10	6	13	58	16	3	10	77	13	6	3	0
5	6	29	29	22	13	22	29	29	16	3	10	39	26	22	3
6	22	19	35	19	3	3	29	39	19	10	0	16	42	22	19
7	10	22	35	19	19	10	19	6	39	26	19	29	3	22	26
8	19	22	35	3	19	10	35	35	6	13	10	45	32	0	13
9	6	35	42	19	3	3	10	3	35	48	0	6	6	29	58
10	6	10	19	45	19	61	6	10	16	6	68	19	6	3	3
11	48	6	10	26	10	10	32	22	29	6	6	52	22	16	3
12	10	26	22	32	10	6	16	32	35	10	3	6	39	16	22
13	13	26	26	26	10	29	42	13	13	3	35	26	29	6	3
14	26	35	16	19	3	10	45	10	19	16	13	35	29	13	10
15	0	19	48	32	0	6	10	39	29	16	0	39	16	19	26
16	10	39	45	3	3	19	16	26	3	35	58	10	10	0	22
17	19	29	42	6	3	0	48	29	16	6	0	39	48	10	3
18	29	16	26	16	13	19	10	29	13	29	70	10	10	0	10
19	71	16	6	6	0	16	48	26	10	0	6	42	32	10	10
20	35	42	10	6	6	22	39	32	6	0	39	29	32	0	0
21	29	45	26	0	0	10	26	39	3	22	22	35	16	10	16
22	19	26	22	16	16	3	13	52	10	22	3	22	35	6	32
23	3	22	45	22	6	13	19	39	19	10	19	19	35	6	19
24	16	19	19	19	26	22	16	22	19	19	35	26	13	6	19
25	19	26	35	6	13	26	0	32	10	32	26	6	35	6	26
26	29	3	13	6	48	32	13	25	13	16	19	19	26	22	13
27	32	19	19	6	22	13	29	22	16	19	13	35	26	6	19
28	32	13	16	19	19	16	6	22	16	39	22	10	19	13	35
29	0	13	45	13	29	3	52	26	0	19	10	19	10	22	39
30	10	42	39	6	3	22	22	26	22	6	48	19	16	6	10
31	16	29	19	16	19	10	32	22	26	10	10	29	19	22	19
32	10	16	19	39	16	19	26	45	6	3	13	16	26	32	13

Class 4_B (Retest)

Pupils	Need Succorance					Need Achievement Recognition					Need Playmirth				
	Least	Bet.	Mid.	Bet.	Most	Least	Bet.	Mid.	Bet.	Most	Least	Bet.	Mid.	Bet.	Most
1	35	35	10	10	10	45	29	6	6	13	39	32	6	10	13
2	16	16	35	22	10	19	26	26	16	13	26	32	16	13	13
3															
4	0	55	26	19	0	6	32	32	16	13	42	39	10	10	0
5	29	22	22	19	6	42	13	6	35	3	42	0	0	55	3
6	10	26	29	22	13	6	22	29	22	19	6	26	22	22	22
7	26	13	22	22	16	0	32	29	22	16	22	32	13	22	10
8															
9															
10	71	16	3	0	10	64	16	6	10	3	74	3	13	0	10
11	26	26	29	16	3	26	29	22	19	3	26	48	19	6	0
12	19	19	16	29	16	10	10	29	29	22	10	29	19	32	10
13	29	16	22	29	3	29	19	16	32	3	42	10	16	26	6
14	10	29	32	10	19	6	22	29	22	19	0	32	32	19	16
15	35	19	13	6	26	29	19	10	6	35	19	26	6	3	45
16	35	19	16	13	16	35	19	22	10	13	42	19	19	6	13
17	0	0	84	13	3	3	32	32	26	6	0	48	22	26	3
18	22	48	16	6	6	13	32	22	6	26	61	6	3	6	22
19	16	35	32	16	0	6	22	32	26	13	0	19	26	26	29
20	48	22	19	3	6	58	16	19	0	6	71	0	19	6	3
21	32	22	22	10	13	32	26	13	13	16	58	6	13	0	22
22															
23	6	13	39	13	29	10	3	26	16	45	13	6	19	16	45
24	29	19	26	16	10	42	0	42	10	6	45	6	26	13	10
25	3	13	35	13	35	19	29	13	6	32	22	6	29	16	26
26	13	16	32	6	32	22	35	22	16	3	10	32	26	19	13
27	26	19	26	13	16	26	26	19	6	22	22	16	22	3	35
28															
29	42	10	26	10	13	45	19	6	6	22	35	22	13	3	26
30	26	22	26	16	10	35	35	19	6	3	52	22	13	10	3
31	0	29	32	32	6	22	26	26	16	10	0	29	42	22	6
32															

Class 3_A (Initial Test)

	Need Succorance					Need Achievement Recognition					Need Playmirth				
Pupils	Least	Bet.	Mid.	Bet.	Most	Least	Bet.	Mid.	Bet.	Most	Least	Bet.	Mid.	Bet.	Most
1	26	17	4	9	43	26	9	13	22	30	22	17	17	9	35
2	0	4	22	39	35	0	4	30	39	26	0	4	9	43	43
3	22	4	17	17	39	13	26	13	13	35	9	17	22	22	30
4	9	17	17	13	43	17	13	22	22	26	17	17	17	22	26
5	17	35	22	13	13	13	30	17	22	17	22	22	22	9	26
6	22	9	17	9	43	13	22	22	22	22	35	9	13	17	26
7	17	13	17	13	39	22	22	22	13	22	22	9	13	17	39
8	22	26	4	17	30	17	17	35	9	22	22	17	22	13	26
9	30	17	13	17	22	78	0	9	4	9	70	0	0	0	30
10															
11	4	17	30	35	13	30	9	30	30	0	22	9	22	22	26
12	39	22	22	4	13	22	22	35	13	9	39	4	0	0	56
13	13	13	13	30	30	17	0	22	39	22	17	17	4	13	48
14	30	22	9	0	39	35	13	13	9	30	30	13	13	13	30
15	22	17	4	9	48	22	13	9	9	48	26	22	9	13	30
16	17	9	26	26	22	9	9	26	26	30	13	17	22	35	13
17	30	22	30	4	13	26	35	22	9	9	26	35	17	13	9
18	30	0	9	4	56	30	4	4	13	48	35	4	0	0	61
19	4	13	22	39	22	13	13	43	17	13	17	13	30	30	9
20	39	9	22	30	0	43	13	17	26	0	43	4	13	35	4
21	30	30	13	22	4	56	17	9	4	13	17	39	17	9	17
22	0	17	22	26	35	22	22	26	17	13	0	30	22	17	30
23	0	17	39	9	35	4	35	35	0	26	17	13	30	9	30
24	13	35	17	30	4	13	17	30	26	13	9	22	22	30	17

Class 3_A (Retest)[1]

Pupils	Need Succorance					Need Achievement Recognition					Need Playmirth				
	Least	Bet.	Mid.	Bet.	Most	Least	Bet.	Mid.	Bet.	Most	Least	Bet.	Mid.	Bet.	Most
1	22	13	13	13	39	22	9	26	4	39	30	4	22	4	39
2	0	0	35	39	26	0	0	30	39	30	0	0	35	30	35
3	35	17	22	9	17	17	39	26	9	9	22	30	22	13	13
4	13	22	26	4	35	43	9	22	17	9	56	4	26	9	4
5	4	39	26	17	13	4	35	13	30	17	9	35	17	22	17
6	26	4	9	13	48	26	0	26	17	30	13	4	22	26	35
7	26	9	22	4	39	30	9	22	9	30	9	13	22	13	43
8	35	13	17	13	22	22	39	4	13	22	39	22	13	9	17
9	35	9	22	0	35	43	4	0	0	52	52	13	9	4	22
10															
11	39	17	9	17	17	52	26	9	9	4	48	9	13	13	17
12	26	13	39	13	9	30	17	30	13	9	26	4	52	17	0
13	13	4	9	26	48	4	4	9	26	56	22	0	9	4	65
14	39	22	39	0	0	30	35	9	0	26	43	22	17	0	17
15	9	13	4	17	56	13	22	13	9	43	17	13	9	9	52
16	9	9	17	30	35	0	0	22	48	30	9	9	22	43	17
17	13	30	43	4	9	9	39	35	4	13	22	22	35	9	13
18	26	0	9	4	61	30	0	0	13	56	35	0	0	9	56
19	9	26	9	43	13	4	26	35	22	13	4	17	39	22	17
20	35	22	13	30	0	26	17	9	39	9	30	13	26	22	9
21	35	22	13	30	0	30	13	17	17	22	39	9	17	26	9
22	9	26	22	22	22	4	22	13	26	35	4	4	13	13	65
23	0	39	43	0	17	0	26	48	0	26	4	13	43	0	39
24	9	26	35	22	9	13	39	30	9	9	9	39	26	22	4

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[1] Individual administration.

Class 3_B (Initial Test)[1]

Pupils	Need Succorance					Need Achievement Recognition					Need Playmirth				
	Least	Bet.	Mid.	Bet.	Most	Least	Bet.	Mid.	Bet.	Most	Least	Bet.	Mid.	Bet.	Most
1	28	24	24	14	10	38	24	24	5	10	48	19	19	10	5
2	33	19	28	5	14	33	28	19	14	5	38	38	10	5	10
3	33	14	10	28	14	28	10	14	38	10	14	19	10	33	24
4	33	24	5	24	14	19	14	19	10	38	38	10	10	19	24
5	33	19	28	19	0	38	24	38	0	0	28	19	28	24	0
6	10	10	33	33	14	5	28	24	38	5	0	24	33	33	10
7	43	33	24	0	0	0	57	43	0	0	0	19	71	10	0
8	48	28	24	0	0	43	38	19	0	0	52	28	14	5	0
9	67	5	5	24	0	76	10	14	0	0	76	14	5	5	0
10	24	14	24	24	14	5	10	10	28	48	10	19	19	33	19
11	5	19	14	19	43	71	5	10	14	0	33	0	10	19	38
12	24	19	24	14	19	19	14	24	19	24	10	24	19	24	24
13	14	24	19	43	0	24	38	14	24	0	14	19	24	24	19
14	0	19	19	19	43	10	14	28	14	33	5	5	19	28	43
15	38	5	14	10	33	48	5	5	5	38	43	5	10	5	38
16	0	33	14	14	38	10	19	28	24	19	10	24	33	19	14
17	38	19	14	28	0	62	19	19	0	0	52	19	10	5	14
18	14	10	24	14	38	24	14	19	14	28	19	19	14	28	19
19															
20	14	19	28	19	19	10	14	28	24	24	24	14	19	19	24
21	24	10	19	10	38	19	14	5	14	48	28	10	5	10	48
22	28	10	24	5	33	33	5	19	5	38	33	19	10	5	33

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[1] Individual administration.

Class 3_B (Retest)

Pupils	Need Succorance					Need Achievement Recognition					Need Playmirth				
	Least	Bet.	Mid.	Bet.	Most	Least	Bet.	Mid.	Bet.	Most	Least	Bet.	Mid.	Bet.	Most
1	33	24	10	19	14	48	10	5	19	19	52	5	5	14	24
2	38	24	10	14	14	33	28	10	19	10	24	24	5	19	24
3	24	33	0	19	24	24	38	5	0	33	10	24	5	0	62
4	38	5	14	14	28	43	19	14	10	14	43	10	14	5	28
5	38	38	24	0	0	57	19	24	0	0	43	19	28	5	5
6	28	19	10	24	19	24	19	19	24	14	28	14	19	24	14
7	14	24	57	0	5	19	48	28	5	0	24	14	57	5	0
8	24	33	19	14	10	48	14	19	5	14	52	10	0	10	28
9	52	14	19	14	0	62	28	10	0	0	81	14	0	5	0
10	10	24	24	19	24	19	19	28	14	19	10	19	33	28	10
11	48	14	0	5	33	71	10	0	0	19	5	14	14	19	48
12	24	19	19	19	19	19	19	24	24	14	28	14	19	14	24
13															
14	19	0	10	14	57	5	0	10	0	86	0	0	0	0	100
15	24	14	14	10	38	14	14	19	10	43	24	10	14	10	43
16															
17	57	19	24	0	0	57	14	5	14	10	52	19	14	5	10
18	33	10	19	14	24	43	5	14	0	38	48	0	10	5	38
19	33	14	48	5	0	0	48	38	14	0	5	48	33	5	10
20	24	14	28	5	28	24	5	24	5	43	33	0	24	19	24
21	14	19	14	10	43	10	14	5	14	57	19	14	10	5	52
22	43	0	5	0	52	62	0	0	0	38	71	0	0	0	28

Class 3_C (Initial Test)

	Need Succorance					Need Achievement Recognition					Need Playmirth				
Pupils	Least	Bet.	Mid.	Bet.	Most	Least	Bet.	Mid.	Bet.	Most	Least	Bet.	Mid.	Bet.	Most
1															
2	0	23	19	27	31	0	27	23	23	27	0	35	4	15	46
3	8	46	8	23	15	35	12	0	27	27	4	4	46	8	38
4	23	4	15	12	46	8	23	27	27	15	15	27	35	15	8
5	19	12	19	12	38	23	15	12	12	38	27	15	12	12	35
6	15	15	15	15	38	19	23	15	4	38	31	4	8	0	58
7	27	27	31	15	0	35	27	23	12	4	31	31	23	12	4
8	19	27	19	31	4	15	19	42	19	4	35	19	27	19	0
9	12	8	27	15	38	12	8	31	15	35	8	15	31	27	19
10	46	35	8	4	8	4	12	23	15	46	35	8	15	4	38
11	35	15	35	8	8	54	12	15	12	8	50	8	27	15	0
12	27	27	19	15	12	31	19	19	12	19	35	15	15	19	15
13	0	27	35	19	19	0	12	54	15	19	0	19	42	23	15
14	27	4	23	23	23	23	19	12	23	23	23	4	23	31	19
15	19	12	15	15	38	12	12	15	12	50	23	12	15	4	46
16	8	15	31	15	31	15	15	35	23	12	12	8	38	27	15
17	15	12	58	8	8	8	15	50	8	19	27	15	19	19	19
18	15	23	23	23	15	8	23	23	27	19	31	4	31	23	12
19	8	19	23	38	12	12	23	23	15	27	19	12	23	27	19
20	4	46	31	19	0	8	38	27	23	4	12	31	35	19	4
21	8	12	31	27	23	0	8	27	27	38	15	4	19	23	38
22	27	19	19	8	27	35	4	23	8	31	0	35	15	12	38
23	19	23	23	23	12	8	35	27	19	12	12	35	27	27	0
24	27	4	27	35	8	31	19	31	15	4	19	35	15	19	12
25															
26	27	4	12	4	54	42	23	8	0	27	12	15	19	0	54
27															

Class 3_C (Retest)[1]

	Need Succorance					Need Achievement Recognition					Need Playmirth				
Pupils	Least	Bet.	Mid.	Bet.	Most	Least	Bet.	Mid.	Bet.	Most	Least	Bet.	Mid.	Bet.	Most
1	35	12	38	8	8	50	0	35	0	15	31	4	38	0	27
2	0	23	27	19	31	0	35	27	15	23	0	42	12	15	31
3															
4	4	35	19	27	15	8	27	23	19	23	12	23	27	27	12
5	19	19	12	8	38	15	15	19	15	35	19	19	12	12	38
6	4	23	15	12	46	4	15	19	12	50	4	12	15	15	54
7	19	42	27	8	4	31	50	8	8	4					
8	23	31	42	4	0	27	35	27	12	0	12	35	31	23	0
9	12	27	23	23	15	12	31	23	15	19	12	23	31	19	15
10	0	12	19	27	42	4	15	15	31	35	4	15	23	23	35
11	58	15	12	15	0	50	27	12	8	4	54	19	4	23	0
12	38	23	15	12	12	35	27	23	12	4	19	19	31	19	12
13	4	8	19	38	31	0	8	23	35	35	0	12	23	38	27
14	27	27	31	15	0	8	19	23	38	12	4	15	31	42	8
15	8	4	4	38	46	8	4	15	31	42	8	4	27	19	42
16	4	12	15	58	12	4	8	31	31	27	0	23	38	19	19
17															
18	31	19	12	15	23	38	19	12	12	19	35	19	15	12	19
19	8	19	31	15	27	19	12	23	15	31	19	8	27	27	19
20	0	62	35	4	0	12	54	23	4	8	19	62	8	12	0
21	19	19	23	8	31	12	23	19	27	19	8	12	19	35	27
22	8	12	31	12	38	4	23	27	8	38	4	23	27	0	46
23	15	27	35	15	8	15	46	19	12	8	19	31	23	23	4
24															
25															
26	19	23	23	12	23	8	23	26	12	31	0	27	27	8	38
27	27	19	23	19	12	23	23	19	26	8	15	23	27	19	15

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[1] Individual administration.

Class 3_D (Initial Test)

Pupils	Need Succorance					Need Achievement Recognition					Need Playmirth				
	Least	Bet.	Mid.	Bet.	Most	Least	Bet.	Mid.	Bet.	Most	Least	Bet.	Mid.	Bet.	Most
1															
2	18	56	22	4	0	30	42	4	7	18	37	22	4	18	18
3	7	4	37	22	30	18	4	30	18	30	37	7	26	7	22
4	11	18	18	22	30	15	15	41	18	11	18	15	26	15	26
5	30	26	30	7	7	18	37	18	4	22	18	11	26	11	33
6	7	26	18	18	30	7	37	22	11	22	7	41	4	15	33
7	22	59	18	0	0	7	70	0	11	11	22	55	0	4	18
8	11	15	22	26	26	7	22	15	11	44	15	18	11	7	48
9															
10															
11	0	7	22	41	30	15	15	22	30	18	15	33	15	15	22
12	15	15	15	26	30	26	4	15	37	18	7	18	22	15	37
13	22	33	22	0	22	7	52	26	0	15	15	30	37	0	18
14	18	18	22	15	26	26	7	18	18	30	22	15	11	26	26
15	18	22	15	33	11	0	18	26	37	18	0	48	26	18	7
16	15	22	41	15	7	11	33	22	26	7	26	37	15	4	18
17	37	7	30	11	15	41	11	26	7	15	30	15	26	7	22
18	4	7	33	30	26	0	11	33	30	26	0	15	44	11	30
19	11	18	26	44	0	7	18	22	44	7	0	18	33	33	15
20	26	18	7	26	22	30	7	7	37	18	22	18	15	30	15
21	22	18	26	18	15	18	22	37	11	11	48	18	18	11	4
22	7	22	30	22	18	33	22	7	22	15	7	37	26	11	18
23	7	22	33	26	11	18	22	30	30	0	15	11	22	26	26
24	22	4	11	15	48	26	4	15	7	48	11	11	26	7	44
25	15	22	18	11	33	4	0	15	22	59	30	4	0	0	66
26	48	7	4	11	30	26	30	11	11	22	40	22	18	4	15
27	30	22	22	15	11	33	11	15	18	22	37	15	22	7	18
28															

Class 3_D (Retest)

	Need Succorance					Need Achievment Recognition					Need Playmirth				
Pupils	Least	Bet.	Mid.	Bet.	Most	Least	Bet.	Mid.	Bet.	Most	Least	Bet.	Mid.	Bet.	Most.
1	52	26	7	3	11	70	4	11	0	15	70	4	4	0	22
2	15	41	26	0	18	30	26	22	4	18	37	26	18	0	18
3	52	0	26	7	15	52	0	26	4	18	52	0	11	18	18
4	4	22	26	30	18	11	15	41	22	11	4	15	41	30	11
5	22	15	18	18	26	37	7	11	22	22	18	33	4	15	30
6	7	33	18	11	30	7	22	30	4	37	7	22	30	4	37
7	26	52	4	0	18	30	52	0	0	18	26	52	7	0	15
8	15	15	11	11	48	4	18	26	18	33	26	26	22	22	4
9	30	4	44	0	22	37	4	37	0	22	56	4	26	0	15
10	18	18	15	18	30	22	18	18	15	26	7	11	18	26	37
11	33	22	15	15	15	37	15	18	7	22	33	22	18	15	11
12	26	7	26	11	30	30	18	22	4	26	18	26	18	4	33
13	18	15	30	11	26	26	26	18	11	18	37	30	7	4	22
14	15	7	37	11	30	11	30	15	18	26	18	26	18	15	22
15	0	11	41	44	4	0	0	52	44	4	7	33	41	15	4
16	22	30	26	7	15	26	26	22	11	15	22	33	22	4	18
17	26	18	18	7	30	52	18	4	7	18	37	30	7	4	22
18	0	4	37	37	22	0	0	44	37	18	0	4	30	44	22
19	11	37	26	18	7	7	33	22	30	7	7	33	33	15	11
20															
21	33	15	33	11	7	7	33	33	18	7	15	41	33	7	4
22	0	41	30	15	15	0	48	18	7	26	0	52	22	4	22
23	26	15	44	4	11	26	26	18	18	11	11	26	37	11	15
24	15	11	7	11	56	15	22	11	7	44	7	22	18	11	41
25	22	0	0	4	74	22	0	0	0	78	22	0	0	4	74
26	33	22	18	15	11	26	33	15	15	11	30	30	11	11	18
27	56	4	11	7	22	44	4	22	7	22	26	15	26	11	22
28	7	15	15	15	48	11	15	15	15	44	7	11	15	11	56

Class 3_E (Initial Test)

Pupil	Need Succorance					Need Achievement Recognition				
	Least	Bet.	Mid.	Bet.	Most	Least	Bet.	Mid.	Bet.	Most
1	22	0	44	6	28	3	0	53	0	44
2	28	25	16	16	16	25	28	9	12	25
3	16	12	12	12	47	16	22	19	25	19
4	22	16	9	22	31	22	12	31	0	34
5	25	16	22	6	31	41	19	9	0	31
6	19	9	53	0	19	19	25	31	0	25
7	19	9	22	9	41	6	9	25	22	38
8	34	9	19	6	31	47	0	3	3	47
9	9	44	47	0	0	34	12	9	0	44
10	9	22	16	16	38	12	6	16	19	47
11	28	16	28	12	16	25	22	19	12	22
12										
13	12	22	16	31	19	12	22	38	19	9
14	16	3	22	12	47	19	0	22	0	59
15	34	25	16	19	6	41	9	34	6	9
16	9	19	22	25	25	6	9	22	31	31
17										
18	31	16	12	9	31	25	19	16	19	22
19	25	19	12	12	31	34	0	22	9	34
20	19	25	25	19	12	19	31	19	19	12
21	22	6	12	3	56	22	0	12	0	66
22	19	12	28	3	38	3	41	47	3	6
23	38	6	6	3	47	28	3	22	19	28
24	22	31	22	9	16	28	25	22	16	9
25	12	25	31	25	6	22	9	28	12	28
26	41	31	28	0	0	56	12	22	6	3
27	19	19	38	12	12	9	16	22	19	34
28	9	9	9	19	53	12	9	12	16	50
29	22	9	25	12	31	31	31	19	9	9
30	22	3	6	38	31	9	12	12	50	16
31	38	9	6	9	38	36	3	6	9	44
32	22	12	28	3	34	34	22	16	6	22
33	12	28	3	12	44	38	16	16	6	25

Class 3_E (Retest)

Pupil	Need Succorance					Need Achievement Recognition				
	Least	Bet.	Mid.	Bet.	Most	Least	Bet.	Mid.	Bet.	Most
1	28	0	47	0	25	44	0	9	0	47
2	19	28	3	38	12	12	31	6	31	19
3	28	22	16	16	19	31	28	12	9	19
4	19	28	6	12	34	28	19	9	3	41
5	34	19	9	6	31	47	16	3	6	28
6	41	31	12	3	12	53	19	6	0	22
7	19	16	12	6	47	31	6	25	3	34
8	38	3	9	12	38	34	3	6	12	44
9	25	12	16	0	47	9	25	16	3	47
10	9	6	22	38	25	25	6	9	28	31
11	19	25	12	19	25	19	22	3	6	50
12										
13	9	31	31	25	3	9	34	47	9	0
14	16	0	28	0	56	22	0	22	0	56
15	25	16	31	9	19	38	12	31	12	6
16										
17										
18	44	6	19	9	22	19	34	3	12	31
19	31	9	9	19	31	34	0	12	12	41
20	28	25	16	22	9	28	25	19	19	9
21	38	9	19	6	28	38	16	9	6	31
22	16	16	19	22	28	9	34	28	19	9
23	72	3	3	6	16	66	3	9	3	19
24	31	47	3	9	9	41	34	0	6	19
25	12	22	31	19	16	19	12	34	28	6
26	94	3	3	0	0	53	31	9	6	0
27	16	28	25	9	22	16	25	22	22	16
28	12	12	16	19	41	22	6	19	9	44
29	22	19	16	12	31	19	22	28	9	22
30	16	12	16	41	16	34	19	12	22	12
31										
32	53	19	6	0	22	47	6	9	3	34
33	34	3	16	12	34	47	3	3	12	34

Class 3_F (Initial Test)

Pupil	Need Succorance					Need Achievement Recognition				
	Least	Bet.	Mid.	Bet.	Most	Least	Bet.	Mid.	Bet.	Most
1	41	0	38	0	22	25	19	22	19	16
2	41	0	19	0	41	47	16	25	6	6
3	28	0	47	0	25	22	38	16	9	16
4	19	0	47	0	34	3	22	47	12	16
5	16	0	38	0	47	0	9	44	6	41
6	44	0	44	0	12	44	0	53	0	3
7	44	0	12	0	44	28	9	19	9	34
8	41	0	41	0	19	41	34	9	12	3
9	25	19	31	6	19	12	12	16	25	34
10	34	0	6	0	59	12	28	25	12	22
11	62	0	28	0	9	56	19	16	3	6
12	41	0	28	0	31	22	38	16	16	9
13	28	0	44	0	28	22	3	34	0	41
14	22	25	19	16	19	12	19	38	9	22
15	44	0	31	0	25	25	25	22	16	12
16	59	19	19	0	3	50	25	12	6	6
17	28	0	28	0	44	25	22	12	9	31
18	53	0	44	0	3	41	9	44	0	6
19	12	19	12	19	38					
20	19	0	53	0	28	22	19	25	16	19
21	19	0	44	0	38	12	12	28	12	34
22	19	0	59	0	22	22	0	53	0	25
23	41	0	22	0	38	69	9	0	0	22
24	12	0	19	0	69	16	25	16	3	41
25	0	0	41	0	59	12	3	25	22	38
26	47	0	34	0	19	62	3	19	6	9
27	62	0	12	0	25	31	22	22	16	9
28	50	0	44	0	6	47	38	12	0	3
29	28	0	50	0	22	19	28	22	19	12
30	12	22	31	3	31	6	31	25	16	22
31										
32	53	0	25	0	22	47	0	22	3	28
33	62	0	25	0	12	44	9	22	9	16

Class 3_F (Retest)

Pupil	Need Succorance					Need Achievement Recognition				
	Least	Bet.	Mid.	Bet.	Most	Least	Bet.	Mid.	Bet.	Most
1	31	25	12	16	16	28	34	22	6	9
2	50	28	9	3	9	53	22	6	6	12
3	12	28	22	28	9	9	19	22	38	12
4	41	25	22	6	6	50	9	19	9	12
5	22	9	38	3	28	72	6	3	0	19
6	22	3	50	0	25	16	0	56	6	22
7	44	16	3	19	19	16	31	22	9	22
8	0	56	25	9	9	0	47	28	19	6
9	16	19	19	31	16	22	38	6	12	22
10	0	22	22	28	28	0	22	25	25	28
11	34	44	12	3	6	50	25	16	0	9
12	28	31	25	12	3	16	25	34	19	6
13	16	9	28	9	38	19	19	28	6	28
14	28	12	38	12	9	34	19	28	9	9
15	66	0	9	0	25	47	9	19	22	3
16	62	25	6	6	0	22	28	19	22	9
17	50	9	3	6	31	53	16	19	6	6
18	53	19	16	9	3	56	12	12	12	6
19	31	19	19	16	16					
20	50	28	9	0	12	59	9	9	12	9
21	22	34	31	12	0	22	44	19	3	12
22	19	28	25	19	9	12	44	16	19	9
23	59	3	16	0	22	59	6	9	3	22
24	22	3	25	0	50	6	9	44	9	31
25	25	22	19	25	9	12	22	25	25	16
26	56	22	16	6	0	44	34	12	6	3
27	31	38	22	3	6	59	22	9	3	6
28	44	38	16	0	3	59	19	12	3	6
29	6	28	34	22	9	19	31	22	19	9
30	16	6	34	16	28	12	6	38	9	34
31	56	16	9	6	12	12	31	16	22	19
32	62	3	22	0	12	72	0	6	3	19
33	44	16	12	0	28	47	0	6	0	47

Special Class$_C$ (Initial Test)[1]

Pupil	Need Succorance					Need Achievement Recognition					Need Playmirth				
	Least	Bet.	Mid.	Bet.	Most	Least	Bet.	Mid.	Bet.	Most	Least	Bet.	Mid.	Bet.	Most
1	14	36	28	14	7	14	21	36	21	7	14	14	36	28	7
2	36	7	7	7	43	14	14	28	7	36	21	7	28	0	43
3															
4	7	21	43	28	0	14	14	50	14	7	7	28	14	28	21
5	14	21	21	36	7	36	28	21	14	0	21	21	21	21	14
6	21	36	21	14	7	43	21	7	14	14	43	14	0	7	36
7															
8	21	14	29	21	14	43	7	21	14	14	36	28	14	7	14
9	28	7	7	14	43	36	0	14	7	43	21	0	14	0	64
10															
11	0	57	43	0	0	21	43	36	0	0	0	50	14	36	0
12	0	21	36	28	14	7	21	7	43	21	14	0	21	21	43
13	28	36	14	14	7	21	14	28	36	0	21	7	21	21	28
14	21	36	7	28	7	14	14	21	29	21	0	28	21	43	7
15	43	36	0	14	7	43	36	0	14	7	43	36	0	14	7

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[1] Individual administration.

Special Class$_C$ (Retest)[1]

Pupil	Need Succorance					Need Achievement Recognition					Need Playmirth				
	Least	Bet.	Mid.	Bet.	Most	Least	Bet.	Mid.	Bet.	Most	Least	Bet.	Mid.	Bet.	Most
1	14	21	29	21	14	14	36	43	7	0	7	36	21	21	14
2	43	0	7	0	50	50	7	7	7	28	43	7	0	0	50
3															
4	7	36	43	14	0	7	36	36	14	7	7	36	28	21	7
5	21	21	28	28	0	21	28	21	28	0	36	28	28	7	0
6	21	0	21	21	36	43	28	21	0	7	21	43	7	21	7
7															
8	21	14	29	21	14	43	14	14	14	14	43	21	21	7	7
9	14	7	14	7	57	14	7	7	7	64	14	7	14	14	50
10															
11	36	14	43	0	7	14	36	7	21	21	14	7	28	14	36
12	7	0	28	43	21	14	14	21	21	29	14	0	36	28	21
13	7	36	28	28	0	7	21	71	0	0	21	7	57	7	7
14	36	21	36	0	7	14	28	22	7	28	7	21	14	21	36
15	93	7	0	0	0	78	21	0	0	0	93	7	0	0	0

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[1] Individual administration.

Special Class$_D$ (Initial Test)[1]

Pupil	Need Succorance					Need Achievement Recognition					Need Playmirth				
	Least	Bet.	Mid.	Bet.	Most	Least	Bet.	Mid.	Bet.	Most	Least	Bet.	Mid.	Bet.	Most
1	17	17	8	17	42	8	25	17	25	25	8	8	33	25	25
2	17	33	25	8	17	8	33	17	33	8	0	25	17	33	25
3	25	0	8	17	50	17	0	58	0	25	17	8	17	17	42
4	25	42	8	17	8	50	25	17	8	0	42	42	0	17	0
5	25	33	17	8	17	33	25	25	17	0	33	33	17	8	8
6															
7	8	8	33	25	25	8	8	17	33	33	33	17	17	17	17
8	17	17	8	33	25	17	42	25	8	8	50	33	8	8	0
9	8	33	25	25	8	17	42	25	8	8	17	33	17	25	8
10	0	8	42	42	8	0	33	25	33	8	0	33	42	25	0
11	8	33	25	25	8	8	50	33	0	8	17	42	25	8	8
12	17	0	8	25	50	17	17	17	25	25	17	17	25	17	25
13	25	17	17	17	25	17	25	25	17	17	33	8	8	25	25

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[1] Individual administration.

Special Class$_D$ (Retest)

Pupil	Need Succorance					Need Achievement Recognition					Need Playmirth				
	Least	Bet.	Mid.	Bet.	Most	Least	Bet.	Mid.	Bet.	Most	Least	Bet.	Mid.	Bet.	Most
1	17	25	8	17	33	17	17	17	17	33	17	25	17	25	17
2	0	42	33	17	8	0	42	25	25	8	8	33	33	17	8
3	25	0	25	8	42	67	0	0	8	25	25	0	25	0	50
4	8	25	42	8	17	50	17	8	8	17	42	42	17	0	0
5	17	25	25	25	8	17	33	33	8	8	8	33	50	0	8
6															
7	0	0	25	33	42	0	17	25	33	25	17	17	17	17	33
8	17	17	25	33	8	83	8	0	0	8	67	25	8	0	0
9	25	17	25	8	25	17	17	25	33	8	17	25	33	17	8
10	0	25	50	25	0	0	17	50	33	0	0	17	50	33	0
11	25	42	17	8	8	50	33	0	8	8	58	25	0	8	8
12	0	0	25	50	25	0	17	33	33	17	0	8	33	25	33
13	17	8	17	25	33	17	17	8	17	42	25	17	8	33	17

Special Class$_E$ (Initial Test)

Pupils	Need Succorance					Need Achievement Recognition					Need Playmirth				
	Least	Bet.	Mid.	Bet.	Most	Least	Bet.	Mid.	Bet.	Most	Least	Bet.	Mid.	Bet.	Most
1	17	17	33	17	17	17	17	33	17	17	17	17	17	17	33
2	0	0	33	17	50	0	17	17	33	33	17	17	0	50	17
3															
4	0	33	50	0	17	0	33	33	17	17	0	33	50	17	0
5	50	17	17	0	17	33	17	33	0	17	33	50	17	0	0
6	0	33	33	33	0	0	50	17	17	17	0	33	33	17	17
7	33	17	17	17	17	33	0	50	0	17	50	0	0	33	17

Special Class$_E$ (Retest)[1]

Pupil	Need Succorance					Need Achievement Recognition					Need Playmirth				
	Least	Bet.	Mid.	Bet.	Most	Least	Bet.	Mid.	Bet.	Most	Least	Bet.	Mid.	Bet.	Most
1	33	17	17	0	33	33	17	17	0	33	33	17	17	0	33
2	0	0	33	17	50	0	33	33	17	17	33	0	33	17	17
3															
4	17	17	17	33	17	0	0	100	0	0	17	0	17	50	17
5	17	33	17	17	17	33	17	17	17	17	33	17	17	17	17
6	17	17	33	17	17	17	17	33	17	17	0	17	33	33	17
7	50	0	17	0	33	50	0	17	17	17	50	0	17	17	17

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[1] Individual administration.